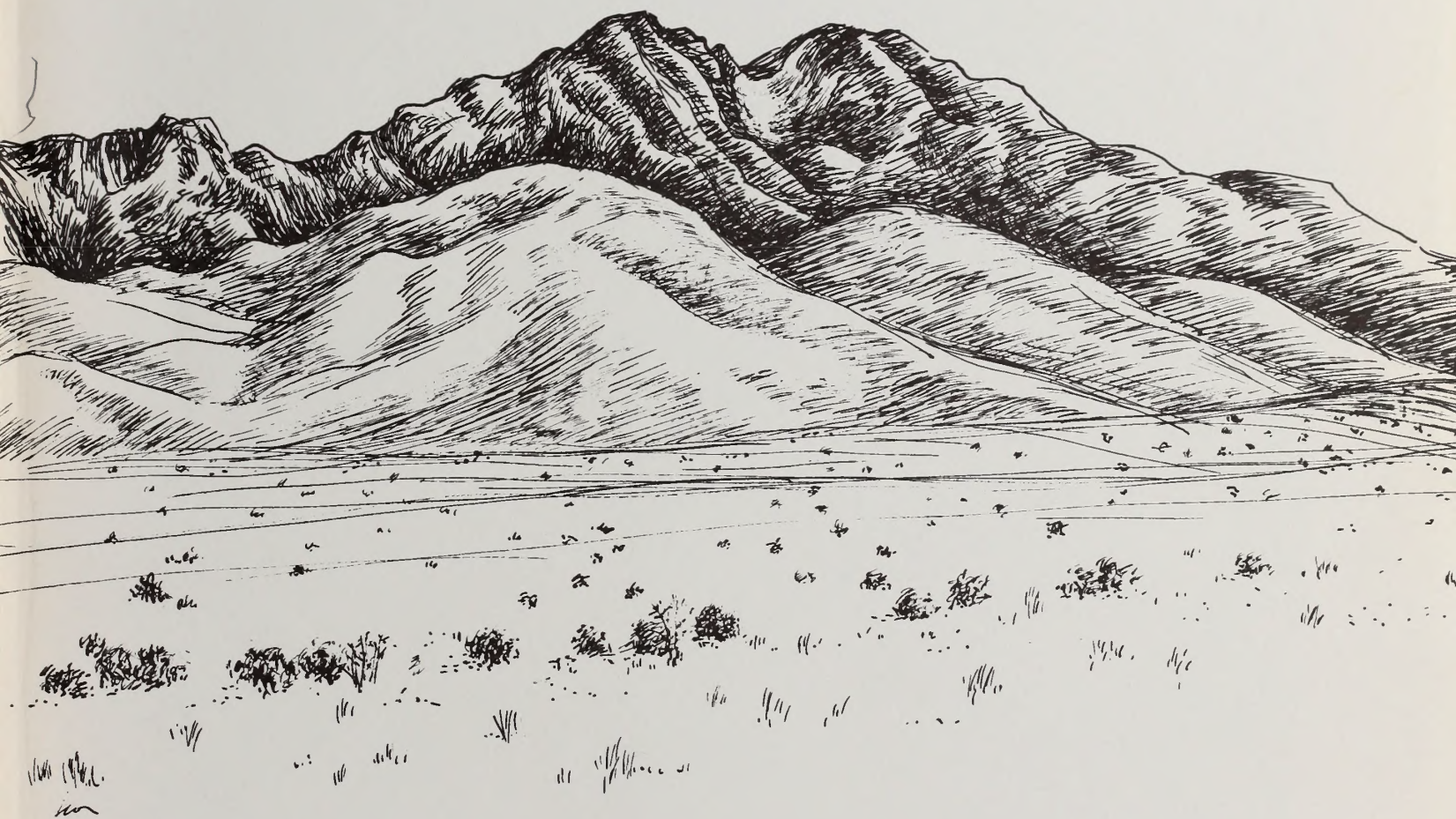




NEW MEXICO STATEWIDE WILDERNESS STUDY

VOLUME 3: APPENDICES WILDERNESS ANALYSIS REPORTS



**U.S. Department of the Interior, Bureau of Land Management
New Mexico State Office, Santa Fe, NM
January 1988**

#18036237

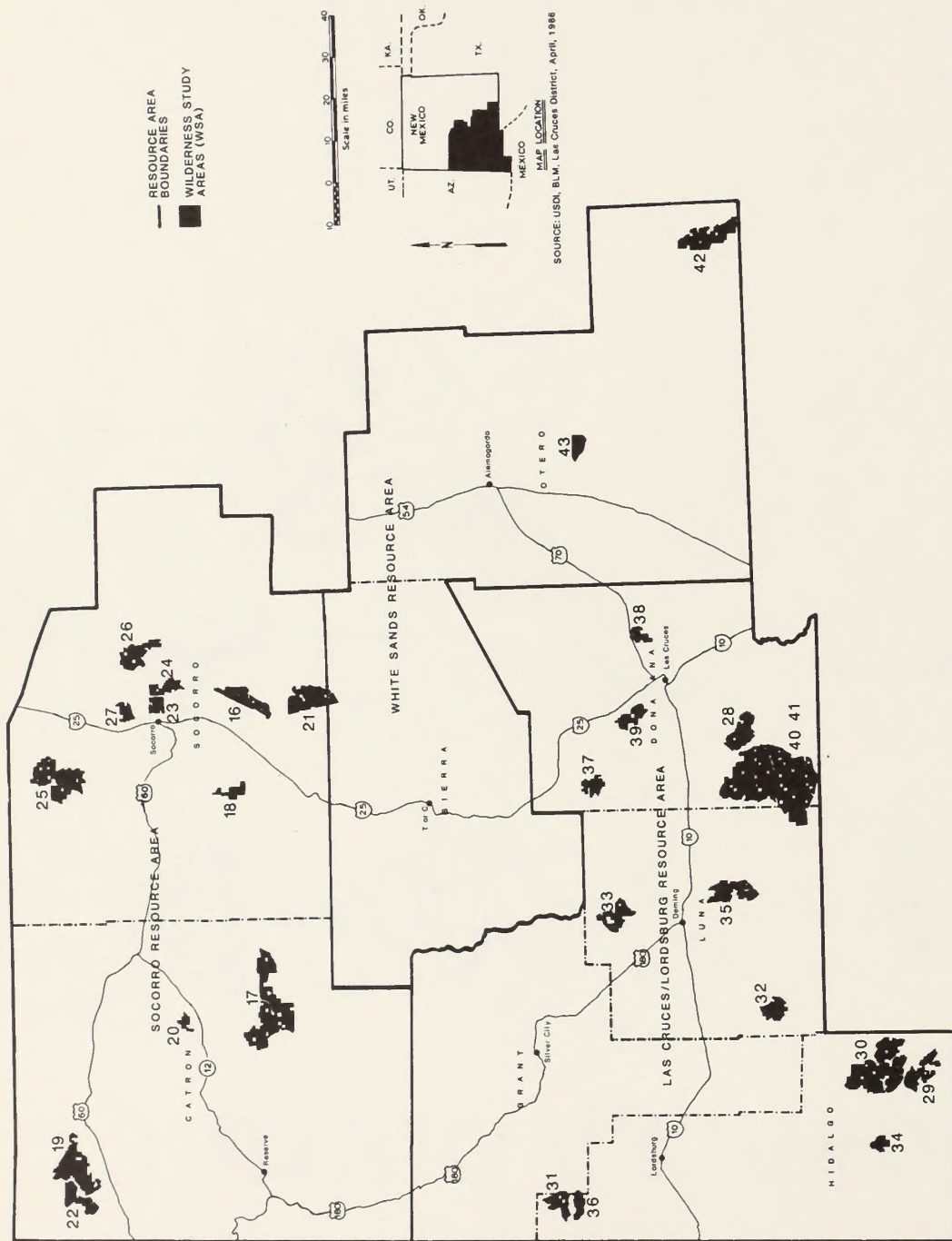
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LAS CRUCES DISTRICT Wilderness Study Areas in the New Mexico Statewide Study

- ALBUQUERQUE DISTRICT
1. Rio Chama
 2. Sabinoso
 3. San Antonio
 4. Cabezón
 5. Empedrado
 6. Ignacio Chavez
 7. Chamisa
 8. La Lena
 9. Manzano

10. Ojito
11. Petaca Pinta
12. Rimrock
13. Sand Canyon
14. Little Rimrock
15. Piñon
16. Antelope
17. Continental Divide
18. Devils Backbone

19. Eagle Peak
20. Horse Mountain
21. Jornada Del Muerto
22. Mesita Blanca
23. Presilla
24. Sierra de las Canas
25. Sierra Ladrones
26. Stallion
27. Veranito
28. Aden Lava Flow

29. Alamo Hueco Mtns.
30. Big Hatchet Mtns.
31. Blue Creek
32. Cedar Mtns.
33. Cooke's Range
34. Cowboy Spring
35. Florida Mtns.
36. Gila Lower Box
37. Las Uvas Mtns.
38. Organ Mtns.

39. Robledo Mtns.
 40. West Potrillo Mtns.
 41. and Mt. Riley
 42. Brokeoff Mtns.
 43. Culp Canyon
- ROSWELL DISTRICT
44. Carrizozo Lava Flow
 45. Little Black Peak
 46. Mudgetts

APPENDIX 16

ANTELOPE WSA (NM-020-053)

I. GENERAL DESCRIPTION

A. Location

The Antelope Wilderness Study Area (WSA) is located approximately 6 miles southeast of San Antonio, New Mexico. The WSA is bound on the west by the Bosque del Apache National Wildlife Refuge and on the east by the White Sands Military Reservation.

The U.S. Geological Survey (USGS) topographic maps covering the WSA are the Cerro Colorado, San Antonio SE, Little San Pasqual Mountain, and San Marcial, New Mexico quadrangles. All four of these maps are at the 7½-minute scale.

B. Climate and Topography

The Antelope WSA is characterized by a semiarid climate with mild winters and hot summers. Average annual precipitation is 8 to 10 inches, with more than half of the moisture occurring during July, August, and September. The average annual temperature is 60°F, with extremes at 5° below zero and 110°F.

This WSA is a rolling desert prairie with elevations ranging from 4,767 feet to 5,065 feet. The foothills of Little San Pasqual Mountain extend into a small portion of the WSA along its southwest boundary.

C. Land Status

The WSA contains 20,710 acres of public land. There are 680 acres of State inholdings within the WSA boundary. (See Map 16-1 for land status within the WSA boundary.)

D. Access

Access to the WSA is provided by a maintained County road which leaves U.S. Highway 380 approximately 6 miles east of San Antonio, New Mexico. County Road 2113 is the primary access road to the eastern portion of the WSA. A road extends approximately 3 miles along the fence which separates the WSA from the Little San Pasqual Wilderness and provides access to the northwestern edge of the WSA. Unimproved ranch access routes traverse the WSA from east to west in three locations.

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ANTELOPE WSA (NM-020-053)
Proposed Action-No Wilderness Alternative

MAP 16-1
LAND STATUS

Legend

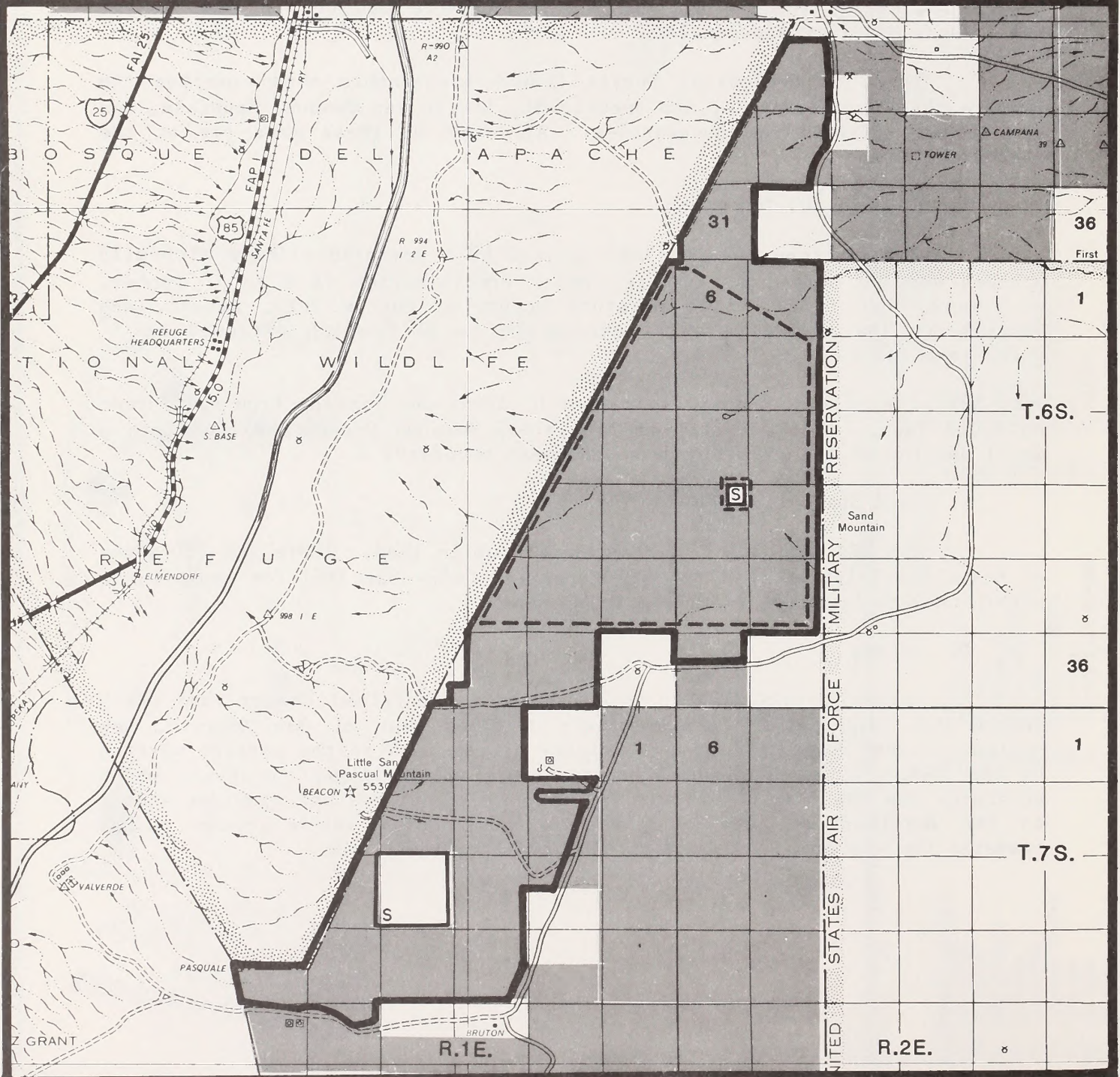
— WSA BOUNDARY
--- AMENDED BOUNDARY

Land Status

■ BLM
□ P PRIVATE
□ S STATE

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives are provided in Table 1. The No Wilderness Alternative is the proposed action for the Antelope WSA because of the marginal quality of the area's wilderness values and because the Antelope WSA would not significantly compliment the adjacent little San Pasqual Wilderness Area on the Bosque del Apache National Wildlife Refuge.

The significant environmental impacts for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
--	--

None for this WSA.

Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
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Impacts on Cultural Sites	Cultural resources were not selected for detailed analysis because there are few known sites and resource development potential is low. A detailed site analysis would be required for any proposed surface disturbing activities.
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Impacts on Oil and Gas Exploration and Development	Mineral resources were not selected for detailed analysis because the potential for occurrence is low.
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Alternatives Selected for Detailed Analysis	Reasons
--	---------

All Wilderness	20,710 acres were identified during the inventory as having wilderness values.
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Amended Boundary	Public comments prompted the consideration of an Amended Boundary Alternative. This alternative improves manageability and reduces resource conflicts.
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No Wilderness (Proposed Action)	The No Action Alternative required by NEPA.
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Environmental Issues Selected for Detailed Analysis

The primary issue identified for this WSA in the initial scoping activities, the WAR, and in public comments on the Draft EA is the impacts on the quality of the area's wilderness values and impacts on livestock grazing use levels.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary	No Wilderness (Proposed Action)
<p>°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 20,710 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Close 7½ miles of ways which currently receive low use (less than 100 vehicles per year).</p> <p>-Current livestock grazing levels of approximately 6 head per section per year would continue.</p> <p>-Require permits for vehicular access to maintain 2 3/10 miles of buried pipeline. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.</p> <p>-20,710 acres with low mineral potential would be closed to oil and gas leasing and mining claim location.</p> <p>-Reasonable access would be granted to WSMR personnel to recover unmanned drones or missile debris which might impact in the area.</p> <p>-Attempts would be made to acquire 680 acres of State land within and adjacent to the WSA.</p>	<p>°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 9,892 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Close 3 miles of ways which currently receive low use (less than 50 vehicles per year).</p> <p>-Current livestock grazing levels of approximately 6 head per section per year would continue.</p> <p>-Require permits for vehicular access to maintain 1 1/2 miles of buried pipeline. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.</p> <p>-9,892 acres with low mineral potential would be closed to oil and gas leasing and mining claim location.</p> <p>-Reasonable access would be granted to WSMR personnel to recover unmanned drones or missile debris which might impact in the area.</p> <p>-Attempts would be made to acquire 40 acres of State land within the WSA.</p> <p>°MANAGE 10,818 ACRES WITHOUT WILDERNESS PROTECTION. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-10,818 acres would remain open to oil and gas leasing. Exploration and development are unlikely because of low potential.</p> <p>-4 1/2 miles of ways would remain open. Vehicle use is projected for less than 75 vehicles per year.</p> <p>-Motorized vehicle access would not be limited to 1/2 mile of pipeline.</p>	<p>°MANAGE 20,710 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Vehicle use would be allowed to continue on 7½ miles of ways. An additional 10 miles of new ways are projected. Total vehicle use is estimated at less than 150 vehicles per year.</p> <p>-Current livestock grazing of approximately 6 head per section per year would continue.</p> <p>-No permits for vehicular access to maintain pipelines would be required.</p> <p>-20,710 acres would be open to oil and gas leasing. Exploration and development are unlikely because of low potential.</p> <p>-Access would be granted to WSMR personnel to recover unmanned drones or missile debris which might impact in the area.</p> <p>-No special attempts would be made to acquire State and private lands.</p>

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues Impacts on Wilderness Values
All Wilderness (20,710 acres)	Wilderness protection would maintain the rolling grasslands of this Chihuahuan desert ecosystem. Opportunities for solitude, hiking, and nonmotorized quail and dove hunting would also be maintained.
Amended Boundary (9,892 acres recommended suitable; 10,818 acres recommended nonsuitable)	Wilderness protection would maintain the area's high quality wilderness values. The remaining 50 percent of the area would be impacted as described in the No Wilderness Alternative.
No Wilderness (20,710 acres) (Proposed Action)	Rangeland management activities and additional vehicular access routes would reduce naturalness and solitude opportunities by 15-20 percent in 80 percent of the WSA the long-term. Existing access routes and new access routes used by hunters and livestock operators would contribute to the degradation of 15-25 percent of the area. Degradation is projected in the central and northern portions of the WSA.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Antelope WSA is situated within the Rio Grande rift and is within the Basin and Range physiographic province. Specifically, it is located on the western edge of the Jornada del Muerto Basin. The northern portion of the WSA contains predominantly Tertiary valley-fill sediments of the Santa Fe formation. The southern portion of the WSA contains mostly Quaternary alluvium and bolson deposits, although there is some exposure of Permian San Andres limestone in the extreme southwestern portion of the WSA.

B. Water

The northern part of the Antelope WSA is located in the Rio Grande Basin and the southern half drains into the Jornada del Muerto, a closed basin. Several ephemeral streams drain the WSA; however, because the area is nearly level and has sandy soils which have high infiltration rates, there is little runoff. Ephemeral stream flow occurs in response to summer thundershowers.

Ground water occurs primarily in alluvium and bolson deposits at depths of 55 to 400 feet. It also occurs in the Datil formation, the Manzano group of the Yaso formation, and the Santa Fe group. There are little water quality data available, but what does exist indicates that sulfate levels exceed the recommended limit for livestock and wildlife as established by the National Academy of Sciences (BLM 1980).

C. Soils

Approximately 90 percent of the WSA is characterized by sandy soils on nearly level slopes. Surface textures range from fine sands to fine sandy loams. Subsoil and substratum textures range from sands to loams. There is a small area just east of Little San Pasqual Mountain that has a loamy soil with textures ranging from loam to clay loam. The sandy soils have a very high soil blowing hazard. These soils are well drained and have slow runoff.

D. Vegetation

1. General

The vegetation and associated range sites within the Antelope WSA consist of seven major types:

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Vegetation Type	Range Site	Federal Acres
Broom dalea	Deep sand, Sandy	10,312
Sand sagebrush	Sandy	5,022
Creosote	Gravelly, Loamy, Limestone hills	1,637
Mesquite	Sandy, Loamy	1,631
Mid grass	Loamy	993
Yucca	Sandy	836
Short grass	Sandy	279

The broom dalea vegetation type occurs on approximately half of the WSA. This type also includes mesquite, snakeweed, sand sagebrush, and littleleaf sumac. The common grasses are fluffgrass and dropseeds.

The sand sagebrush type occupies about one-fourth of the area. Other common species include yucca, snakeweed, black grama, and dropseeds.

Creosote areas are dominated by creosote, tarbush, and snakeweed. Other shrubs in the creosote vegetation type include Mormon tea and mesquite. Predominant grass species include fluffgrass, threeawns, dropseeds, bush muhly, black grama, and galleta. This vegetation type has a high proportion of annuals; the most common being annual snakeweed, common bahia, buckwheats, spectaclenod, sixweeks grama, sixweeks threeawn, and windmill grass.

The mesquite vegetation type also contains Mormon tea, snakeweed, fourwing saltbush, and sand sagebrush as associated shrubs. Common grasses are black grama, fluffgrass, galleta, and dropseeds.

The mid grass vegetation type is dominated by alkali sacaton in the higher rangeland condition categories, but contains higher proportions of burro grass and snakeweed in the lower rangeland condition categories.

The yucca vegetation type contains soaptree yucca, a tree-like species several meters tall. Other common shrubs are snakeweed and Mormon tea. Black grama, galleta, threeawn, and dropseeds are the most common grasses.

Short grass, the smallest vegetation type, is dominated by black grama in some places and by dropseeds in others. Additional common short grass species are ring muhly, bush muhly, galleta, and threeawns. Scattered individuals of snakeweed, sand sagebrush, and other shrubs can also be found.

2. Rare Plant Species

The Department of Natural Resource for the State of New Mexico lists as endangered the following species which may occur in the WSA.

Species: Coryphantha duncanii

Status: Listed as endangered by the State of New Mexico.

Habitat: Limestone hills.

E. Wildlife

The Antelope WSA supports approximately 155 wildlife species, which are comprised of 35 mammal species, 50 reptile and amphibian species, and 70 resident and migratory bird species. The most common wildlife species within this WSA are coyotes, black-tailed jackrabbits, desert cottontails, pronghorn, raptors, and various songbirds.

The Antelope WSA contains two major Standard Habitat Sites (SHS's). These SHS's are described briefly below.

1. Shrub Pediment

The shrub pediment SHS is a mixture of short grass, mid grass, tall grass, and yucca subtypes. Yucca types can be found throughout the SHS with it being a dominant plant aspect wise in some places. The grasses occur mostly in the lower lying edges of the Jornada Plains where disturbance by humans or livestock seem to be most evident. Species diversity appears low for the SHS, possibly due to livestock pressure and lack of good cover.

2. Creosote Hill

The principal areas of the creosote hill SHS are the rolling upland hills east of the Rio Grande. Ground cover is sparse when creosote grows in nearly pure stands. This area has many arroyos that run toward the river.

F. Visual

The WSA is an expansive upper Chihuahuan desert environment characterized by little topographic or landscape diversity. The line of the landform is horizontal; colors are generally tans and muted greens. The Antelope WSA's location in a large desert bolson affords wide vistas of distant mountain ranges to the east and west of the WSA.

The WSA is currently in a Visual Resource Management (VRM) Class IV.

G. Cultural

A total of five prehistoric sites have been recorded in the Antelope WSA. They consist of lithic and ceramic scatters usually with associated hearths. These sites were located during a survey of three

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sections of the WSA associated with a Class II survey of the Jornada Resource Area in 1976 and a survey for a proposed pipeline in 1981. Personal communications with individuals who are familiar with the area have revealed a number of unrecorded sites in the Antelope WSA. A multicomponent Paleo-Indian site is located in the eastern portion of the WSA and Archaic sites are located in blowouts and on ridges throughout the WSA. The sand covering the WSA probably conceals numerous sites.

H. Air

Generally, the quality of air within the Antelope WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May), when west-prevailing winds, commonly gusting in excess of 30 mph, result in dust storms.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

1. Energy Minerals

As of April 15, 1986, there were no oil and gas leases in the WSA.

a. Oil and Gas

There are no known oil and gas occurrences and no test wells have been drilled within the WSA. Test wells have been drilled 25 miles northeast, 5 miles west, and 20 miles south of the WSA. All of these wells are dry holes. Although the Jornada Basin in general is considered to have low to moderate potential for the occurrence of oil and gas, the WSA's presence within the Rio Grande rift suggests that any oil and gas that may have been present is now gone because of faulting associated with the rift. The oil and gas potential in the Antelope WSA is low.

b. Geothermal

Anomalous heat flows and moderate to high geothermal potential are associated with the Rio Grande rift. However, in the WSA, there is no direct evidence of underlying or proximate magma chambers or other positive geothermal indicators as in the Socorro, New Mexico area to the north. For this reason, the geothermal potential of the area is considered low.

c. Coal

Coal occurs in the Cretaceous Mesaverde formation northeast of the WSA. This area, known as the Carthage Coal Field, is situated on a fault-bound block that has been uplifted and internally fractured. The WSA is on the down-thrown side of a major fault. If coal bearing formations exist in the subsurface of the WSA, they have been faulted down to a depth which would preclude their economic development. The potential for economic coal deposits in the Antelope WSA is low.

2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA. There is no evidence of locatable mineralization in the WSA. The geologic environment in the WSA is not favorable for the occurrence of mineralization.

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TABLE 3
MINERAL RESOURCES POTENTIAL OF THE ANTELOPE WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Mesozoic and Paleozoic continental and marine sedimentary rocks within the Jornada del Muerto Basin	Low	--
Geothermal	Possible igneous plutons associated with the Rio Grande rift	Low	--
Coal	Cretaceous Mesaverde group continental margin sediments within the vicinity of the Carthage coal field	Low	--

Note: *Acreage was not calculated for areas with low potential.

B. Livestock Grazing

1. Allotments

Parts of two grazing allotments are within the Antelope WSA (see Table 4). The entire area is suitable for livestock grazing. Licensed grazing use on public land includes cattle and a few horses.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Sand Mountain 1285	21,878	1,892	14,090	1,268	64%
San Pasqual 1272	13,012	1,860	6,620	949	51%
TOTAL			20,710	2,217	

2. Ranch Management

The day-to-day ranch operations in the WSA consist of checking on livestock and forage condition, availability of livestock water, supplementing salt, and routine maintenance on fences and pipelines. Pickup trucks are used for most of the daily ranch operations in the WSA. Because there are no natural water sources in the WSA, livestock waters must be checked frequently to ensure the availability of water.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development	Location
Sand Mountain 1285	2 3/10 miles pipeline and 2 troughs	T. 6 S., R. 1 E., Sections 24 and 25 T. 6 S., R. 2 E., Section 19
	2 miles pipeline and 1 trough	T. 6 S., R. 2 E., Sections 5 and 6
San Pasqual 1272	2 miles fence	T. 7 S., R. 1 E., Sections 20 and 21
	1/2 mile pipeline and 1 trough	T. 7 S. R. 1 E., Section 21

Boundary Fence:

Sand Mountain 1285 and San Pasqual 1272 1 mile

Note: ^{a/}Information shown in tables reflect only Federal acres and animal unit months (AUMs), and rangeland developments on public land.

3. Potential Rangeland Developments

No additional rangeland developments have been proposed for the WSA at this time.

C. Recreation

Existing recreational use of the area is low because of the WSA's general lack of recreational attractions. Dove and quail hunting accounts for most existing use with some vehicular sightseeing and ORV use occurring along the improved road along the eastern side of the WSA.

D. Wildlife

The WSA contains one umbrella type game water facility which was installed to provide water primarily for pronghorn.

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E. Other -- White Sands Missile Range (WSMR) Aerobee 350 Safety Evacuation Zone

The Antelope WSA is located within the WSMR Aerobee 350 Safety Evacuation Zone established by Memorandum of Understanding (MOU) between the U.S. Army and the BLM in 1973. This MOU specifies periodic evacuation of the Safety Zone and right of access to recover objects which impact in the area due to its proximity to targeting locations within the missile range proper.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The Antelope WSA generally appears natural. However, the quality of naturalness is reduced by human impacts inside and adjacent to the WSA.

Human impacts which negatively impact the quality of naturalness within the WSA consist of rangeland developments and ways. There are 7 1/2 miles of ways, 4 4/5 miles of buried plastic pipeline, 4 drinking troughs, and 3 miles of barbed wire fence inside the WSA.

Human impacts outside the WSA boundaries also affect the feeling of naturalness in the Antelope WSA because of the lack of topographic or vegetative screening. These impacts include: 1 mile of overhead transmission line cherry-stemmed 1 mile into the southeastern portion of the WSA; a large microwave tower adjacent to the eastern boundary of the WSA; large storage tanks, corrals, and windmill towers in two locations on the eastern boundary of the WSA; and 13 miles of barbed wire fence along the western boundary of the WSA.

b. Solitude

The location of the WSA in an expansive desert environment and the current lack of visitor use in the area compensate for the lack of topographic or vegetative screening and result in outstanding opportunities for solitude. Opportunities for solitude are greatest in the central portion of the WSA which is bordered by the Little San Pasqual Wilderness on the west and by White Sands Missile Range (WSMR) on the east. A series of low mountains and sand hills on WSMR provide some screening from activities occurring east of this portion of the WSA. The quality of solitude is reduced in the northern and southern portions of the WSA by a relatively narrow configuration and the presence of a maintained county road which forms portions of the eastern and southern boundary of the WSA. Traffic along this road, the road which forms 3 miles of the northeastern portion of the WSA, and vehicles used in ranching operations are visible over a wide area of the WSA due to the lack of topographic or vegetative screening in the area.

Low altitude military training flights also impact solitude, but because they are intermittent and of short duration, these impacts would not be significant.

c. Primitive and Unconfined Recreation

Although the WSA offers good dove and quail hunting, opportunities for other types of recreation are limited and opportunities for primitive recreation are not outstanding. The vast majority of bird hunting occurring in the WSA is accomplished by motor vehicle access.

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2. Special Features

The WSA provides pronghorn habitat and winter habitat for raptors.



Overview of the Antelope WSA with San Pasqual Mountains in the background.

3. Multiple Resource Benefits

Congressional designation of the area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Antelope WSA as being in the Chihuahuan Desert Province. The potential natural vegetation is grama-tobosa shrubsteppe. Fifteen other WSAs are classified in this ecosystem.

b. Distance From Population Centers

Three cities identified in the 1980 census as Standard Metropolitan Statistical Areas (SMSAs) are located within less than 5 hours driving time of the WSA. Albuquerque, New Mexico lies within 2 hours driving time, Las Cruces, New Mexico lies within 3 hours driving time, and El Paso, Texas within 4 hours driving time of the WSA.

B. Manageability

Factors which potentially affect the manageability of the Antelope WSA include: land ownership patterns, rangeland developments, and the presence of the area in the WSMR Aerobee 350 Safety Evacuation Zone.

The WSA contains 680 acres of State inholdings. Reasonable access will be granted by BLM to the owners of these inholdings. This access is not expected to result in significant manageability problems, but could reduce solitude opportunities in these areas.

The WSA lies within the WSMR Aerobee 350 Safety Evacuation Zone that must be periodically evacuated during missile firings. The availability of the Safety Zone is required for an indefinite period of time to support future military programs requiring a test range in excess of that provided by the main WSMR. WSMR requires reasonable access to the Safety Zone to recover missile debris and pilotless drones. These access needs are not expected to create serious wilderness management problems because the debris, in most cases, could be removed within the constraints of wilderness management. No debris removals have occurred within the WSA to date. In those cases where recovery impacts wilderness values, the impacts would not be long-term due to the sandy character of the WSA. The military's need to periodically evacuate the area for safety reasons would slightly complicate wilderness management.

Lands that should be considered for acquisition under the All Wilderness and Amended Boundary Alternatives are legally described below.

<u>Legal Description</u>	<u>Acres</u>
Additional Lands to be Acquired Under the All Wilderness Alternative	
T. 7 S., R. 1 E., Section 16, All	640
Lands to be Acquired Under the Amended Boundary Alternative	
T. 6 S., R. 2 E., Section 19, NF $\frac{1}{2}$ NF $\frac{1}{2}$	40

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 20,710 acres of public land within the Antelope WSA would be recommended suitable for wilderness designation. (See Map 16-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981).

1. Impacts on Wilderness Values

Wilderness designation would provide the existing marginal wilderness values present in the Antelope WSA with long-term Congressional protection. The Chihuahuan Desert Grassland found in this WSA would be maintained in a natural condition. Because the Antelope WSA generally lacks topographic or vegetative screening, opportunities for solitude are largely dependent on the size of the area. Because the U.S. Fish and Wildlife Service does not allow grazing on the Little San Pasqual, the existing fence would remain in place, and the Antelope WSA and the Little San Pasqual Wilderness would remain distinct areas. The differences in management policies would limit the benefits of complementing the adjoining Little San Pasqual Wilderness. Existing recreation opportunities, which are not outstanding, would be maintained with wilderness designation. Activities such as ORV use and new road construction would be prohibited to prevent surface disturbance which could degrade wilderness values.

Conclusion. Wilderness designation would provide the wilderness values present in the Antelope WSA with long-term Congressional protection. Because livestock grazing is not permitted on the adjacent San Pasqual Wilderness, these areas would remain as distinct units with differences in vegetation and management practices.

2. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 6 head per section per year (2,217 AUMs). Under BLM's Wilderness Management Policy (WMP), there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include almost 5 miles of pipeline and 3 miles of fence. No new rangeland facilities are planned; however, improved access to existing facilities has been proposed. Maintenance of existing facilities is allowable under the BLM's WMP, with permits required when motorized vehicles or equipment are used. Minor repairs to fences would have to be accomplished on horseback.

Conclusion. Because of restrictions on vehicular access and rangeland developments, inconvenience to the livestock operators would result; however, no impacts on livestock grazing use levels would occur.

B. Amended Boundary

Under the Amended Boundary Alternative, 9,892 acres of public land within the Antelope WSA would be recommended suitable for wilderness designation. This was analyzed to determine the impacts of designating a portion of the WSA as wilderness. The remaining 10,818 acres would be recommended nonsuitable for wilderness designation. (See Map 16-1 for amended boundary.)

1. Impacts on Wilderness Values

The amended boundary would improve naturalness by eliminating 2 miles of fence, $\frac{1}{2}$ mile of pipeline, 1 drinking trough, $4\frac{1}{2}$ miles of vehicle routes, and 1 mile of cherry-stemmed powerline from the WSA. Opportunities for solitude would improve because portions of the WSA adjacent to maintained roads would be eliminated under this alternative. Manageability would be improved since the amended boundary area would contain only 40 acres of State inholdings and would be bound by designated wilderness on the west and the White Sands Missile Range (WSMR) on the east. Manageability problems resulting from vehicular use by dove and quail hunters would still exist, but would be reduced by eliminating 60 percent of the existing vehicle routes and access points. Under the Amended Boundary Alternative, impacts to access needs by WSMR would be lessened by reducing the size of the area subject to wilderness management. The 9,892 acres of Chihuahuan Desert Province with a potential natural vegetation of grama-tobosa shrubsteppe would be preserved in its natural condition. Wilderness values on 10,818 acres recommended nonsuitable would be reduced due to the continued use of motor vehicles for hunting and livestock grazing purposes.

Conclusion. Wilderness designation under this alternative would protect the wilderness values in the core of the WSA while eliminating areas with marginal wilderness values. On 10,818 acres recommended nonsuitable in the WSA, naturalness and solitude opportunities would be reduced by 15-25 percent as a result of continued use of motor vehicles.

2. Impacts on Livestock Grazing Use Levels

Under this alternative, impacts to livestock grazing would be reduced by excluding one grazing allotment and portions of another from the constraints of wilderness management. By locating the boundary of the amended area along an existing vehicle way, impacts from vehicle restrictions would be minimized. The amended boundary contains 2 buried plastic pipelines, totaling $4\frac{3}{10}$ miles, and 3 drinking troughs. Vehicular access or the use of mechanized equipment to maintain $1\frac{1}{2}$ miles of pipeline would be authorized only if there were no practical alternatives and would be on a permit basis. The $2\frac{1}{2}$ miles of pipeline which were constructed during interim management would not be maintained with mechanized equipment. No additional rangeland developments are planned within the amended boundary at this time.

Conclusion. Because of restrictions on vehicular access and rangeland developments, an inconvenience to the livestock operators would result, but no impacts on livestock grazing use levels would occur.

ANTELOPE

C. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the entire 20,710 acres of public land within the Antelope WSA would be recommended nonsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III.

In the 20,710 acres not designated as wilderness, unavoidable adverse impacts would result from future rangeland management activities and vehicular access. Over the long-term these activities would adversely effect naturalness in a portion of the WSA. Short-term consumptive use would not significantly affect wilderness values. Nondesignation of the 20,710 acres as wilderness would leave the acreage available for development which could irreversibly degrade wilderness values and foreclose the option of wilderness designation in the future. However, there are no existing or proposed plans for development in the area.

1. Impacts on Wilderness Values

The natural qualities of this Chihuahuan Desert Grassland would not be provided with long-term Congressional protection. Since existing and proposed BLM plans do not identify any activities which would significantly impact natural values, the area would retain its generally natural character in the short-term. Opportunities for solitude would be reduced by 15-25 percent within 80 percent of the WSA through continued vehicular access on existing and new vehicle ways for ranch operations and by use during hunting season.

The Antelope WSA's location in an expansive desert environment and sweeping vistas of surrounding landscapes are important contributors to the feeling of naturalness and solitude inside the WSA. Under this alternative, these circumstances would not change appreciably and therefore, would not significantly impact wilderness values.

Conclusion. In the long-term, rangeland management activities and continued vehicular access could impact the naturalness of the WSA through the creation of 10 miles of new access routes. In 80 percent of the WSA, approximately 15 to 25 percent of the acreage could potentially be affected by the continued use of motor vehicles in the area. These impacts would not significantly alter the existing situation in the WSA nor would they impact the adjacent Little San Pasqual Wilderness.

2. Impacts on Livestock Grazing Use Levels

Current livestock grazing use levels of approximately 6 head per section per year would continue. Construction and maintenance of rangeland developments and the use of motor vehicles for livestock management purposes would be allowed. Maintenance of pipelines would be allowed by mechanical means.

Conclusion. There would be no impacts on livestock operations or livestock grazing use levels. Grazing use levels are projected to remain the same and there would be no impacts to livestock grazing operations in the WSA.

ANTELOPE

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report has been prepared with public input obtained by large mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the Statewide Wilderness EIS.

The New Mexico Wilderness Study Area Proposals (BLM 1980) recommended 20,710 acres of the Antelope intensive inventory area as a WSA. During the public comment period on this recommendation, comments were received supporting and opposing WSA status of the area.

Sixteen personal letters favored WSA status of Antelope. These letters were of a general nature and supported WSA status because of the area's naturalness, opportunities for solitude and recreation, and supplemental values. Form letters and petitions received during the comment period listed Antelope as one of the areas supported for wilderness review.

Four personal letters opposed WSA status of Antelope. Two of these letters contained specific reasons why the area lacked outstanding opportunities for solitude. Other supporting reasons included: the area did not appear natural, lack of supplemental values, resource conflicts, and lack of manageability.

After a reevaluation of the Antelope area based on these comments and the area's wilderness characteristics, the BLM released the entire Antelope area from further wilderness review in the New Mexico Wilderness Study Area Decisions (BLM 1980) because it lacked outstanding opportunities for solitude or recreation.

This BLM decision was protested to the BLM New Mexico State Director. The State Director denied the protest and his decision was appealed to the Interior Board of Land Appeals (IBLA).

In reviewing the decision, the IBLA states that the BLM improperly decided not to consider the scenic vistas attributable to the contiguity of the Little San Pasqual Wilderness in determining the opportunities for solitude. The IBLA then reversed the BLM decision denying the protest and remanded Antelope to the BLM as a WSA. As a result of the ruling, Antelope is a WSA and its suitability for wilderness designation was evaluated in the Las Cruces District Wilderness Supplemental Draft Environmental Assessment (BLM 1984).

During the public comment period on the Las Cruces District Wilderness Supplemental Draft Environmental Assessment (BLM 1984), 36 personal inputs with 37 signatures were received which favored wilderness designation of the Antelope WSA. In addition, 29 personal inputs with 42 signatures, 7 form letters with 15 signatures, and 2 petitions with 147 signatures opposed wilderness designation of the Antelope WSA.

Comments favoring wilderness designation most often noted the need to include areas of "open, expansive Chihuahuan Deserts" in the National

Wilderness Preservation System, the value of the Antelope WSA as an addition to the adjacent Little San Pasqual Wilderness, and the lack of resource conflicts if the area were designated wilderness. Commentators also stated that the draft report failed to consider boundary adjustments to improve wilderness values and manageability, and that the relationship of the Antelope WSA to the Little San Pasqual Wilderness was inadequately addressed.

As noted in the public comments, the draft report failed to consider a logical amended boundary. An Amended Boundary Alternative has been included in this Wilderness Analysis Report.

Comments opposing wilderness designation of the Antelope WSA primarily noted that the Little San Pasqual was enough wilderness for this part of New Mexico.

Many of the comments opposing wilderness designation cited the impacts to ranch operations and impacts to access to the old town site and cemetery at Val Verde, as well as to the Little San Pasqual Wilderness Area.

Several commentators felt the Antelope WSA was nonsuitable because it is "an arid land with no natural water, very little vegetation, hardly any wildlife, and no recreational attractions."

WSMR expressed concern that wilderness designation would conflict with their periodic need to enter the area to recover debris and their use of the area for low altitude training flights. Designation would limit the military's access to the area, but reasonable access could be granted after determining the means that would least impact wilderness values.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Antelope WSA and recommended wilderness designation for 19,680 acres of the WSA. Specific comments were directed to the Antelope WSA by 11 commentators. Ten commentators supported wilderness designation and one opposed it.

During the public comment period on the split-estate issue (January 18 - February 18, 1986), the U.S. Fish and Wildlife Service (USFWS) submitted comments recommending the No Wilderness Alternative for the Antelope WSA. This recommendation was based on the agency's contention that the WSA had been severely impacted by livestock grazing and was unnatural in character. During the formulation of alternatives for the Statewide Draft EIS published in May 1985, the USFWS supported the Amended Boundary Alternative for the WSA as a compliment to the adjacent Little San Pasqual Wilderness Area.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Antelope WSA by 29 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

ANTELOPE

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The Coalition feels strongly that wilderness designation for Antelope would enhance the opportunities for solitude and for unconfined recreation in the existing Little San Pasqual Wilderness. The addition would also make a more complete package of Chihuahuan desert environment. Our proposal includes 800 acres of State land that is isolated in three parcels within the WSA. We concur with dropping 2,400 acres from the extreme northern end of the WSA as it is a narrow strip surrounding a private section which probably cannot be acquired."

Response: We agree that larger areas generally provide greater opportunities for experiencing solitude. We also agree that your proposal would make a more complete package of Chihuahuan Desert environment. However, in this particular case BLM feels that the range developments within the Antelope WSA and the distinct differences in management between the BLM and the U.S. Fish and Wildlife Service (USFWS), reduces the potential that wilderness designation of the Antelope WSA would not compliment the adjoining San Pasqual Wilderness Area. Authorized vehicle use associated with the maintenance of existing pipelines, troughs, and fences within the Antelope WSA further reduces the overall quality of the solitude experience. In addition, the USFWS submitted comments supporting the BLM analysis and recommendation.

* * * * *

No. 0263

Name(s): David Bates, Taos Environmental Association

Comment: "Again, your staff mentions that the WSA is 'severely impacted by livestock grazing.' Why are you not meeting your responsibility to the public by correcting this abuse?"

No. 0263 (concluded)

Response: Page 16-19 of the Revised Draft EIS states "the WSA has been severely impacted by livestock grazing." This comment was made in a letter by the USFWS, Bosque del Apache National Wildlife Refuge. The comment does not necessarily represent the BLM's position on the condition of the range within the WSA.

* * * * *

No. 0609

Name(s): Dominique Bachelet

Comment: "Antelope WSA is unique in supporting a population of wild horses."

Response: There are no wild horses in the Antelope WSA. You may have confused the wild horse herd partially located in the Stallion WSA with the Antelope WSA.

APPENDIX 17

CONTINENTAL DIVIDE (NM-020-044)

I. GENERAL DESCRIPTION

A. Location

The Continental Divide Wilderness Study Area (WSA) is located in west-central New Mexico. It lies in Catron County, south of the Plains of San Agustin, approximately 29 air miles south of Datil. The WSA name is derived from the fact that the area is bisected by the Continental Divide.

The U. S. Geologic Survey (USGS) topographic maps covering the WSA are the Fullerton, Paddy's Hole, Mojonera Canyon, Rael Canyon, O Bar O Canyon, Indian Peaks West, and Pelona Mountain quadrangles. All of these are New Mexico quadrangles at the 7½-minute scale.

B. Climate and Topography

The WSA has a generally mild, semiarid climate. Precipitation is normally received during the warmer 6 months of the year. Half of the annual average precipitation falls from July through September during brief, but often heavy thundershowers. Winter is usually the driest season. Annual precipitation averages about 14 inches over the entire WSA, with the lower elevations averaging 12 to 13 inches and higher elevations 16 inches. Average annual snowfall is 2 to 3 feet in most localities.

Temperatures in the summer average in the 80's during the days and in the 40's at night. Winter temperatures normally range from the 40's during daylight hours to the low teens at night. Temperatures as low as -28°F have been recorded. Mean annual maximum and minimum temperatures for the area are 63° and 26°F, respectively. The frost-free season lasts nearly 90 days in those elevations above 7,000 feet.

The prevailing winds over the WSA are from the southwest. Spring and summer winds of high intensity are common.

Pelona Mountain, at 9,212 feet, is the highest point in the WSA. Elevation differences range up to 2,400 feet with the lowest elevations (6,785 feet) occurring on the western edge of the WSA. The Continental Divide runs east-west through the WSA.

Pelona Mountain has three major drainages: Railroad Canyon drains to the south; Cottonwood Canyon courses west; and Shaw Canyon drains to the north. The northwestern portion of the WSA is characterized by rugged canyons and rough, hilly country. To the south and east of Pelona Mountain stretch extensive, rolling short grasslands.

CONTINENTAL DIVIDE

C. Land Status

The Continental Divide WSA contains 68,761 acres of public land. There are 1,680 acres of private land and 3,420 acres of State land inholdings in the WSA (see Map 17-1 for land status).

D. Access

The WSA may be reached by State Highway 78 and from State Highway 12 via County Roads B019 and C016. From these maintained roads, it is necessary to take unmaintained two-track ways into the WSA. Major access routes are through Shaw Canyon in the north, Cottonwood and West Canyons in the west, and through the Adobe Ranch into the southern and western portions of the WSA. All these routes cross private land. The acquisition of an easement across the private land would be required to ensure legal access into the WSA. Access from the north has been restricted by the landowner.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis, as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The Amended Boundary Alternative is the proposed action because wilderness designation under this alternative would provide wilderness management protection to the portion of the WSA that has the highest wilderness values and it would reduce resource conflicts. Under this alternative, 37,599 acres are recommended suitable and 31,162 acres are recommended unsuitable for wilderness designation.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

CONTINENTAL DIVIDE WSA (NM-020-044)

PROPOSED ACTION - AMENDED BOUNDARY ALTERNATIVE

MAP 17-1
LAND STATUS

Legend

— WSA BOUNDARY

- - - AMENDED BOUNDARY

Land Status

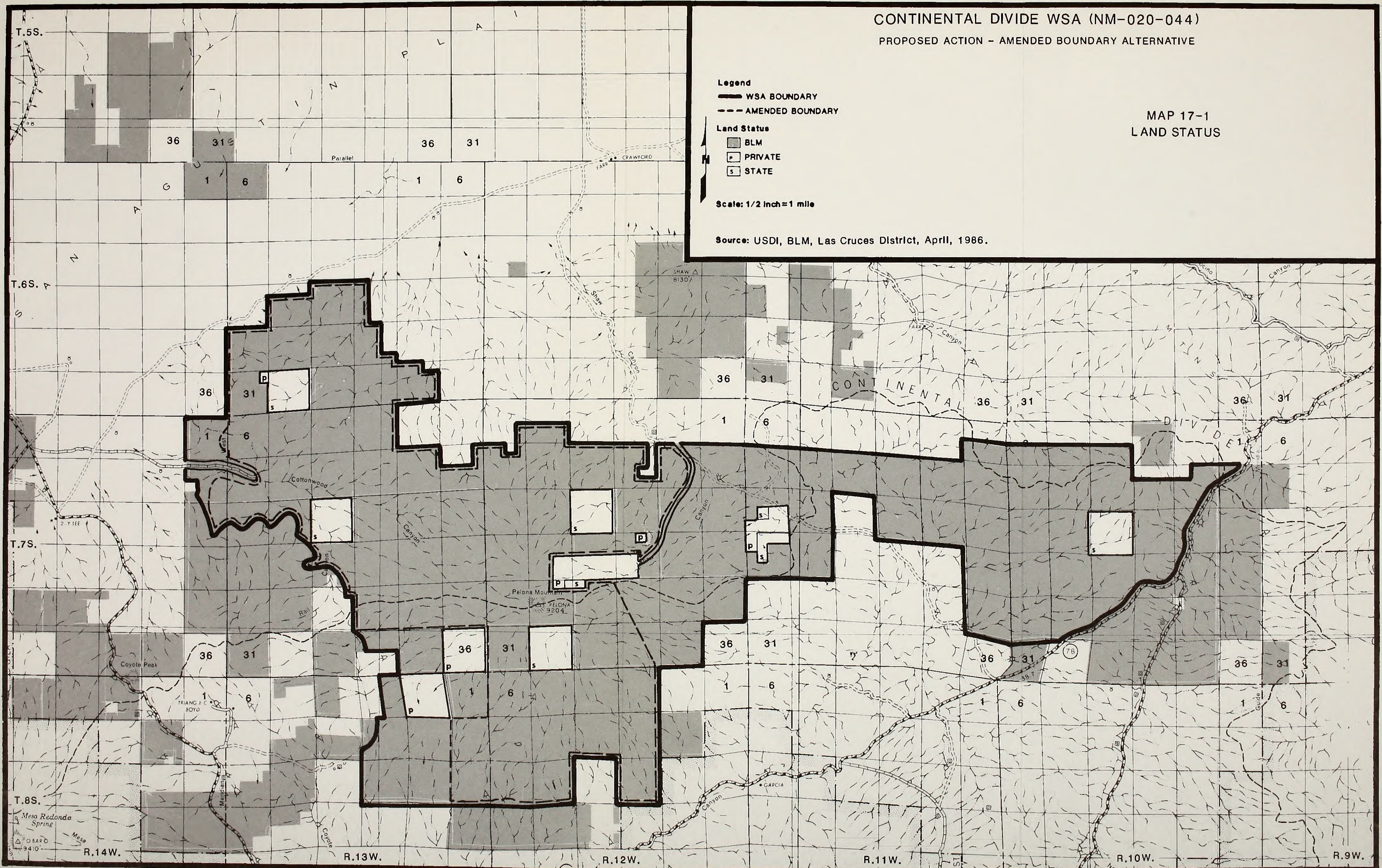
BLM

PRIVATE

STATE

Scale: 1/2 inch = 1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



SUMMARY OF SCOPING

Alternatives Considered and Set Aside		Reasons for Not Including this Alternative
None for this WSA		
Issues Raised and Set Aside		Reasons for Not Conducting a Detailed Analysis
Impacts on Development of Commerical Timber	While there are an estimated 9.1 million board feet of timber within the WSA, other areas outside the WSA are better suited for logging. There has been no interest in the Continental Divide timber since the early 1960's.	
Impacts on the Following Threatened or Endangered Species: Bald eagle Peregrine falcon Black-footed ferret	The U.S. Fish and Wildlife Service has concurred with BIM's finding of no effect on species Federally-listed or proposed for listing as threatened or endangered. An analysis of potential impacts to threatened and endangered species would be required for any proposed surface disturbing activities.	
Impacts on Energy Resources	Recent exploration within and adjacent to the WSA indicates oil and gas potential is moderate for the WSA. There are no mineral leases within the WSA. The only drilling in the area was a dry-well 35 miles northeast of Pelona Peak.	
Impacts on Cultural Resources	Cultural resources were not selected for detailed analysis because there are few known sites and a detailed site analysis would be required for any proposed surface disturbing activities.	
Alternatives Selected for Detailed Analysis		Reasons
All Wilderness	68,761 acres were identified during the inventory as having wilderness values.	
Amended Boundary (Proposed Action)	Improves manageability, reduces conflicts, and protects high wilderness values.	
No Wilderness	The No Action Alternative required by NEPA.	
Environmental Issues Selected for Detailed Analysis		
<p>Impacts on the quality of the area's wilderness and supplemental values, impacts on exploration and possible development of tin, and impacts on livestock grazing use levels are the primary issues for the Continental Divide WSA. Although no significant impacts to tin resources were identified, the minerals issue was analyzed because of the WSA's moderate potential and because mineral potential is an issue of Statewide concern. No significant impacts on livestock grazing use levels were identified; however, the issue was analyzed because of Statewide interest.</p> <p>A portion of the Continental Divide WSA (24,000 acres) has moderate potential for tin resources. Concerns regarding mineral potential include restrictions on mineral exploration under wilderness designation, as well as the potential impacts to the naturalness of the Continental Divide WSA resulting from mineral exploration and other development such as harvesting of timber products if it is not designated wilderness.</p> <p>The wilderness values issue is required by the BIM Wilderness Study Policy. The WSA contains very high wilderness values, possesses excellent size, and is relatively close to population centers such as Albuquerque.</p> <p>Concerns regarding livestock grazing use levels include the inconvenience to livestock operators from vehicle restrictions under wilderness designation, as well as an expected increase in vandalism and harassment if it is not designated wilderness.</p>		

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
MANAGE TO MAINTAIN OR ENHANCE WILDERNESS VALUES ON 68,761 ACRES. THE FOLLOWING ACTIONS WOULD BE TAKEN:	MANAGE TO MAINTAIN OR ENHANCE WILDERNESS VALUES ON 37,599 ACRES. THE FOLLOWING ACTIONS WOULD BE TAKEN:	MANAGE 68,761 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-45 miles of existing vehicular ways would be closed to vehicle use. This vehicle use is a combination of recreational and livestock purposes and estimated at less than 100 vehicles per year.	-33 miles of existing vehicular ways would be closed to vehicle use. This use is a combination of recreational, mineral exploration and development, and livestock purposes and estimated at less than 100 vehicles per year.	-Vehicle use would be allowed to continue on 45 miles of existing vehicle ways. Because of mineral exploration and development over the long-term, an additional 25 miles of vehicle ways are projected for the central and western portions of the WSA. Total vehicle use is estimated at less than 200 vehicles per year.
-Habitat Management Plan projects including 29,640 acres prescribed burns, 1.5 miles of fence, 9 additional wildlife water sources, and seeding of 6,600 acres of additional browse species would be allowed if the projects would enhance wilderness values.	-Habitat Management Plan projects including 21,720 acres prescribed burns, 3 additional wildlife water sources, 1.25 miles of fence, and seeding of 1,860 acres additional browse species would be allowed if the projects would enhance wilderness values.	-Management actions proposed in the Habitat Management Plan could be carried out as proposed. These include 29,640 acres of prescribed burns, 9 wildlife waters, seeding of 6,600 acres of additional browse species, and 1.5 miles of fence.
-Require permits for vehicular access to 28 dirt tanks and 1/2 mile of pipeline. No more than 4 trips per year are anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.	-Require permits for vehicular access to 11 dirt tanks. No more than one trip per year is anticipated for vehicle access. Casual use for inspections and minor repairs would be precluded.	-Vehicular access restrictions for maintenance of rangeland developments would not apply.
-Current grazing levels of approximately 11 head per section per year would continue.	-Current grazing levels of approximately 11 head per section per year would continue.	-Current grazing levels of approximately 11 head per section per year (13,779 AUMs) would continue.
-68,761 acres would be closed to energy minerals leasing exploration and development.	-37,599 acres would be closed to energy minerals leasing exploration and development.	-68,761 acres would remain open to energy minerals leasing and mining claim location including 24,000 acres with moderate potential for tin. It is projected that exploration would result in a total of 10 to 50 drill holes in areas of moderate potential for tin and for oil and gas exploration. These areas are located in the central portion of the WSA. Total surface disturbance resulting from exploration would be 30 to 70 acres. There would be an additional 10 to 20 miles of new access roads. Commercial production is not expected but could result in up to 200 acres of new surface disturbance. Access for development would be on the same roads constructed for exploration activities.
-68,761 acres would be closed to mining claim location. The closed area would include 24,000 acres with moderate potential for tin.	-37,599 acres would be closed to mining claim location. The closed area would include 16,600 acres with moderate potential for tin.	

TABLE 1 (Concluded)
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
-Attempts would be made to acquire 3,520 acres of State land and 2,349 acres of private land within and adjacent to the WSA.	-Attempts would be made to acquire 2,560 acres of State and 200 acres of private land within and adjacent to the WSA.	-No special attempts would be made to acquire State and private lands. -An estimated 950,000 board feet of ponderosa pine and 1,500 cords of pinyon-juniper firewood could be harvested over the long-term. However, this is not anticipated due to the marginal quality of the timber, difficult access, economics, and better suited areas on nearby Gila National Forest lands.
	<p>^gMANAGE 31,162 ACRES WITHOUT WILDERNESS PROTECTION.</p> <p>-31,162 acres would remain open to energy minerals leasing and mining claim location including 7,400 acres with moderate potential for tin. It is projected that exploration for oil and gas would result in a total of 5-10 drill holes over the long-term. It is projected that exploration for tin would result in a total of 5 to 20 drill holes in areas of moderate potential. Total surface disturbance for all energy and mineral exploration would be less than 40 acres. An additional 10 miles of new access roads would occur. Commercial production is not anticipated in the short-term but could result in up to 200 acres of new surface disturbance. Access for development would be on the same roads constructed for exploration activities.</p> <p>-Vehicle use would be allowed to continue on 12 miles of existing ways. Because of energy mineral exploration and development, approximately 5 miles of new roads would occur.</p> <p>-Current grazing levels of approximately 11 head per section per year would continue over the long-term.</p> <p>-Management actions proposed in the Habitat Management Plan could be carried out as proposed. These include 7,920 acres of prescribed burns, 6 additional wildlife waters, 4,740 acres of seedings, and ½ mile of fence.</p> <p>-Recent oil and gas exploration in the area indicates a moderate potential. Exploration needed to fully assess the potential oil and gas resources of the area would be possible on 31,162 acres. It is anticipated that 10-30 drill holes and 8-10 miles of new roads would be constructed as a result of exploration activities.</p>	

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues	
	Impacts on Wilderness Values	Impacts on Tin Exploration
All Wilderness (68,761 acres)	The Continental Divide's forested mountains and rolling grasslands, opportunities for solitude, hiking, hunting, and camping would be maintained. Wildlife habitat for such species as pronghorn antelope, mule deer, black bear, turkey, mountain lion, elk and raptors would be maintained in a natural condition.	Based upon past exploration in the area, no impacts on exploration or development of tin in the short-term would occur. In the long-term, exploration for tin (24,000 acres moderate potential) and other mineral resources would preclude the opportunity to make a full determination of the area's tin potential.
Amended Boundary (37,599 acres recommended suitable, 31,162 acres recommended nonsuitable) Proposed Action)	The forested mountains and approximately 20% of the area's grasslands would be maintained in a natural condition. This would maintain the area's solitude and recreation opportunities as well as the abundant wildlife habitat. 80% of the area recommended nonsuitable for wilderness designation are rolling grasslands. Construction of 5-10 miles of vehicle routes and mineral exploration in this region would result in a total loss of wilderness values.	Based upon past exploration, no impacts on exploration would occur in the short-term. In the long-term, exploration for tin (16,600 acres moderate potential) and other mineral resources would be precluded on approximately 70% of the acreage with mineral resource potential.
No Wilderness (68,761 acres)	Development of access routes for mineral exploration and development and fuelwood and timber harvest would break this roadless area up into several parcels. Wilderness values would be lost over a widespread area and the apparent naturalness of approximately 75 percent of the area would be degraded and opportunities for solitude would diminish throughout the area.	No impacts on mineral exploration or development would occur.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Continental Divide WSA is located within the Datil-Mogollon Volcanic Plateau. This area is transitional between the Basin and Range province and the Colorado Plateau. The Plains of San Agustin have many features typical of classic block-faulted, Basin and Range valleys. The major geologic feature in the WSA is Pelona Mountain, a composite strato-volcano of basaltic to andesitic composition. Pelona Mountain is one of a series of Tertiary volcanic features which surround the southwestern portion of the Plains of San Agustin. Apart from some minor Quaternary alluvium, the rocks exposed within the WSA are confined to rhyolitic and andesitic flows and tuffs of the mid-Tertiary Datil formation, unnamed late Tertiary andesitic to basaltic flows, and volcanic sandstones and conglomerates of the early Quaternary Gila conglomerate. Outcrops along Rail and Cottonwood Canyons exemplify the sequential nature of these rock formations. A small uplift at the foot of Horse Mountain to the northwest of the WSA and a deep well drilled near the center of the Plains of San Agustin suggest that sandstones and limestones of Cretaceous, Triassic, and Permian age lie beneath the volcanic pile comprising Pelona Mountain. The deep well also suggests that the Mesozoic and Paleozoic rocks unconformably overlie deep Precambrian Gneiss.

B. Water

The Continental Divide WSA is located on the southern boundary of the Plains of San Agustin, a closed basin with interior surface water drainage. While no permanent streams or surface water bodies exist on public land in the WSA, a cienega which has been developed to provide water for livestock is located on private land at the base of Pelona Peak. Many of the alluvial arroyos and canyons, which drain from high mountains, contain runoff during the more intense storms. This runoff usually disappears quickly into alluvium along the border between mountains and lowlands. Occasionally, small water bodies exist in depressions in basin floors until they evaporate or infiltrate.

The principal aquifer in the area is formed by the Quaternary age bolson deposits. Some water may be present in the small patches of Gila conglomerate and Quaternary alluvium, which are widely scattered in the area. Large amounts of ground water are present beneath the adjacent Plains of San Agustin area, as it is within a closed drainage basin. The depth to water in the area ranges from less than 50 feet to 500 or more feet in the higher mountainous areas. Only limited water quality data are available in the area as no wells are monitored on a regular basis. Analysis of water from a well in the Plains of San Agustin, which is very near to and typical of ground water in the WSA, indicates that the water is suitable for livestock purposes.

C. Soils

Approximately 75 percent of the WSA has soils that are shallow to moderately deep over bedrock. The bedrock is basalt, tuff, or volcanic

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conglomerate. Rock outcrop is common in the area. Soils are generally loamy to clayey and commonly have rock fragments throughout.

Erosion is not serious on any of the soils that are gently sloping, due to the protective rock fragment cover. There is a sizable area on the western portion of the WSA that would be very susceptible to water erosion due to the steep slopes. Wind erosion would not be a problem anywhere in the WSA.

D. Vegetation

1. General

In the Continental Divide WSA, the following Standard Habitat Sites (SHS's) are present:

Ponderosa-Pinyon Mountain (4,945 acres)

The Ponderosa-Pinyon Mountain SHS in the WSA is dominated by ponderosa pine. There are a few areas of Douglas fir which are usually in north-facing drainages or on north-facing slopes in the higher elevations. Limber pine is scattered at the highest elevations. The coniferous forest type is usually found at the higher elevations in the WSA on the north- and west-facing slopes with a mixture of pinyon pine, alligator juniper, and one-seed juniper also occurring on southern and eastern slopes. This type has an understory of gray oak, Gambel's oak, mountain mahogany, snow berry, wax current, and buck brush; some traces of elderberry and wild rose are also found in drainage bottoms. Cool-season grasses found in this SHS are Junegrass, fringed brome, mutton grass, Arizona fescue, pine dropseed, and timber oat grass. Of these grasses, mountain muhly, mutton grass, and Junegrass are the most common. Pinyon pine is found throughout the understory of this type, occurring generally as young saplings. Frequency of its occurrence is high in the large transition zones between this and the other types. Animals that can be found in this SHS include mule deer, wintering elk, gray foxes, golden eagles, turkey vultures, red-tailed hawks, and great horned owls. Other animals that can occasionally be found include black bear, mountain lions, bobcats, and bald eagles.

Blue Grama-Snakeweed Hill (52,704 acres)

This SHS is found principally on the southern and eastern portions of the WSA plus a large area on the high plateau in the center of the WSA spreading northwest and southwest from Pelona Mountain. The grassland is dominated by blue grama. Wolf tail is associated with blue grama over most of the WSA. Other grasses found in lesser amounts are squirrel tail, needle and thread, and black grama. The most common shrubs found mainly in the swales and drainages of this type are broom snakeweed, Apache plume, rubber rabbitbrush, fourwing saltbush, and winterfat. Common animals in this SHS include black-tailed jackrabbits, coyotes, kit foxes, pronghorn, red-tailed hawks, and golden eagles.

Pinvon-Juniper Hill (11,112 acres)

The Pinvon-Juniper Hill SHS usually lies just below the Coniferous Forest type in elevation and intermingles with the Coniferous Forest type in a transition zone. This type predominates on southern and eastern slopes and ridge tops where soils are shallow and undeveloped. It is characterized by an overstory of chiefly pinvon pine, alligator juniper, and one-seed juniper. The major understory species associated with the pinyon-juniper include mountain mahogany, oak, rubber rabbitbrush, globemallow, blue grama, and sunflower. The most common grass is blue grama with sideoats grama and western wheatgrass found in the better sites. In addition to mule deer, the SHS provides a seasonal use area for wintering elk on Pelona Mountain. Other mammals common to this SHS include desert cottontails, cliff chipmunks, porcupines, rock squirrels, bobcats, and mountain lions. Bird species common to this SHS include the fly catcher, vireos, sparrow, nighthawk, warbler, raven, flicker, and woodpecker.

2. Rare Plant Species

No rare plant species have been recorded from this area. However, the WSA does contain habitat which offers potential for the occurrence of 17 species of threatened or endangered plants.

E. Wildlife

1. General

The Continental Divide WSA supports approximately 309 wildlife species. These include 59 reptile/amphibian species, 75 mammal species, and 175 resident and migratory bird species. A complete list of wildlife species for the Continental Divide WSA is available for review at the Socorro Resource Area Office. A description of characteristic wildlife species present in the WSA is included in the SHS discussion in the Vegetation section.

2. Threatened or Endangered Fauna Species

The WSA has been identified by the U.S. Fish and Wildlife Service as providing potential habitat for bald eagles, peregrine falcons, and black-footed ferrets; all Federally endangered species. Of these species, only wintering bald eagles are known to migrate through the WSA.

F. Visual

The Continental Divide WSA contains two basic visual landscapes: a vast expanse of rolling grasslands and a forested environment characterized by steep canyons and broad ridges. They have been rated as Visual Resource Management (VRM) Classes IV and II, respectively.

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The vast expanse of smooth rolling hills which extend to the east and south of Pelona Mountain also creates a dramatic visual landscape. The pastel browns, greens, and yellows of the rolling hills are backdropped by blue mountains and extend for several hundred square miles with few human structures in evidence except for occasional fences, roads, and windmills.

The area west and northwest of Pelona Mountain is a rugged landscape which exhibits the diversity of color, vegetation, relief, shape, and geology common to the pine-forested mountains of the region. Numerous vantage points which exist along ridges and other high points in this portion of the WSA offer spectacular vistas. Views from the 1,200-foot escarpment along the western edge of the WSA extend across the Plains of San Agustin and encompass much of west-central New Mexico.

G. Cultural

A total of 11 sites have been recorded: nine historic homesteads or associated historic features, one historic grave, and one prehistoric site. Bat Cave (on the National Register of Historic Places), when excavated in the late 1940's, was reported to contain the earliest occurrence of maize in North America. This conclusion has been questioned by some researchers. It is hoped that testing at Bat Cave by the University of Michigan (summer of 1981) will resolve the question of such early dates.

H. Air

Generally, the quality of air within the Continental Divide WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May), when west-prevailing winds, commonly gusting in excess of 30 mph, result in dust storms.

III. EXISTING AND POTENTIAL USES

A. Mineral Development

Mineral resources potential of the lands within the WSA is shown on Map 17-2 and Table 3.

1. Energy Minerals

As of April 15, 1986, there were no mineral leases in the WSA.

a. Oil and Gas

No oil and gas exploration wells have been drilled within the WSA. The closest exploration well to the WSA is a 12,284-foot dry wildcat well within the Plains of San Agustin, approximately 35 miles northeast of Pelona Peak. This dry well suggests that a sequence of possible petroleum source and reservoir rocks (Cretaceous, Permian, and Mississippian in age) lie below the volcanics comprising Pelona Mountain. Within this region, a few oil and gas wells have tested this sequence with negative results, however, recent (1984-1986) and on-going geophysical exploration has indicated more favorable conditions for hydrocarbon deposition than had previously been recognized, warranting changing the oil and gas potential from low to moderate. Additional information was obtained concerning oil and gas potential, however, it was deemed confidential and proprietary and therefore cannot be included in this document.

b. Uranium

Uranium and thorium mineralization is often associated with volcanic deposits. Despite this relationship, regional information suggests a low potential for the discovery of economic uranium or thorium deposits.

2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA.

a. Tin

Although no occurrences of base metal mineralization have been identified within the WSA, the geologic environment is favorable for tin deposits. The rhyolitic flow unit of the Datil formation, which is exposed at the surface and underlies most of the WSA, is the host rock for tin deposits within the Taylor Creek mining district. The northernmost extent of known significant tin mineralization is along Squaw Creek, approximately 12 miles southeast of Pelona Peak. Anomalously high tin values have been reported in a stream sediment sample 6 miles east of Pelona Peak. This anomalous sample was taken within 2 miles of the WSA's border and from a stream whose origin is within the WSA. This sample was taken as part of the Geology, Energy, and Mineral Resources Assessment of the San

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Agustin Area performed by Geoexplorers International, Inc. (1982). The conclusions reached as a result of this assessment indicate that the WSA provides a low to moderately favorable environment for tin. Additional support for this conclusion has been obtained from a geochemical survey of the area completed by the Los Alamos National Laboratories (Report LA-UR-85-375, completed in 1985) which shows prominent geochemical anomalies of tin around the western, southeastern, and eastern boundaries of the WSA.

If economic conditions encourage the exploration and development of known tin deposits within the Taylor Creek mining district, peripheral areas such as Pelona Mountain would become of great interest. Under such a situation, the Pelona Mountain area could be subject to geochemical sampling, block claim location, and eventually, test drilling. The possibility exists that a large, low-grade tin deposit could be developed.

b. Base and Precious Metals

Other base metal and precious metal mineralization could exist but no direct or strong indirect evidence exists to support this inference. In general, the geologic environment has low potential for economic precious or base metal mineralization.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE CONTINENTAL DIVIDE WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*	Approximate Acreage in Amended Boundary*
Energy Minerals				
Oil and Gas	Mesozoic and Paleozoic continental and marine sedimentary rocks	Moderate**	68,761	—
Uranium	Tertiary Gila conglomerate	Low	—	—
Nonenergy Minerals				
Base and Precious Metals	Early Tertiary igneous intrusions in Paleozoic and Precambrian rocks	Low	—	—
Tin ^{a/}	Hematitic veins in Tertiary flow banded rhyolites and nodular concretions in Quaternary fluvial deposits	Moderate	24,000	16,600

Notes: *Acreage was not calculated for areas with low potential.

**Recent (1984-1986) geophysical exploration indicates a moderate potential for oil and gas within the WSA.

a/Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

CONTINENTAL DIVIDE WSA (NM-020-044)
PROPOSED ACTION - AMENDED BOUNDARY ALTERNATIVE

MAP 17-2
MINERAL RESOURCE POTENTIAL*

Legend
—— WSA BOUNDARY
--- AMENDED BOUNDARY

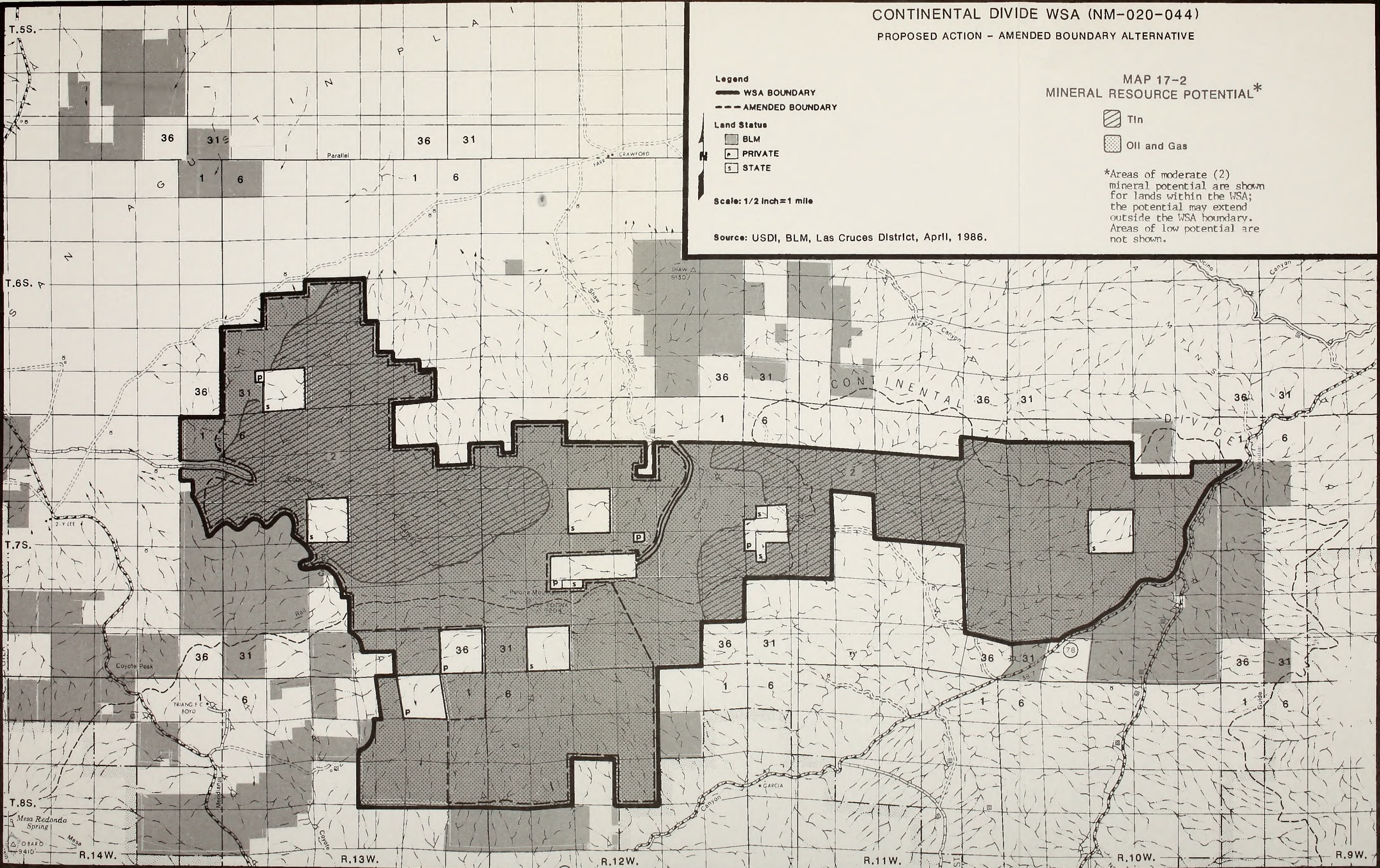
Land Status
■ BLM
□ PRIVATE
□ STATE

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.

▨ Tin
▤ Oil and Gas

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.



B. Watershed

The Continental Divide WSA contains two watersheds: North Divide and South Divide. All lands in the watersheds are classified as productive acres. There have been no projects for land treatment or erosion control except for a prescribed burn in November 1981, a small (5 acres) tree-planting project near the head of Cottonwood Canyon, and snag felling of timber. No areas within the WSA are in the severe erosion classification. Runoff over the area averages 1 inch per year with erosion amounts of 0.2 to 0.5 acre-feet per square mile per year.

C. Livestock Grazing

1. Allotments

The boundary of the WSA includes portions of five grazing allotments (see Table 4). The Y Ranch and Paddy's Hole allotments graze yearlings in the WSA from April 15 until October 15. Shaw Canyon allotment grazes cows/calves in the WSA from April 15 until October 15. The beginning and ending dates of the above grazing periods may vary depending on weather conditions such as the presence or absence of snow. The Coyote Canyon and Adobe Ranch allotments run cow/calf operations. Grazing use varies during the year based upon availability of forage and the type of grazing system in use on the allotment. Livestock grazing use levels are approximately 11 head per section per year.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name Name and No.	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Coyote Canyon 0024	11,986	2,448	4,280	881	36%
Y Ranch 0028	24,199	3,993	13,299	2,196	55%
Shaw Canyon 0054	38,233	6,936	29,882	5,410	78%
Paddy's Hole 0109	4,480	852	1,720	324	38%
Adobe Ranch 0059	28,158	7,200	19,580	4,968	69%
TOTAL			68,761	13,779	

2. Ranch Management

The day-to-day ranch operations in the WSA consist of checking on livestock conditions and forage conditions, supplementing salt or protein, availability of livestock water, breaking ice on livestock waters, and performing normal maintenance on fences, dirt tanks, and pipelines. Pickup trucks are used for most of the daily ranch operations in the WSA. Normal maintenance of various rangeland developments is performed using motorized vehicles such as a pickup truck and bulldozer to clean the dirt tanks. Table 5 includes rangeland developments in the WSA.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name	Type of Development
Coyote Canyon	6 miles of boundary fence 2 dirt tanks
Y Ranch	3 miles of interior fence 9 miles of boundary fence 6 dirt tanks
Shaw Canyon	11 dirt tanks 1½ miles of fence 19 miles of boundary fence
Paddy's Hole	2 miles of boundary fence
Adobe Ranch	10 miles of interior fence 9 dirt tanks ½ mile of pipeline

Note: ^{a/}Information shown in tables reflects only
Federal acres and animal unit months (AUMs),
and rangeland developments on public land.

3. Potential Rangeland Developments

Potential livestock grazing in the WSA could increase with additional rangeland developments needed to intensify grazing management. The type and location of these developments have not been specifically identified at this time. Fences would be the most likely rangeland development proposed in the WSA. No new fences have been proposed at this time.

D. Timber Harvest

Forest resources in the WSA consist of an estimated 9.1 million board feet of ponderosa pine and 15,070 cords of pinyon-juniper firewood. However, much of this timber is of marginal quality, and inaccessible for any economic logging. Only about 10-25 percent of the timber is harvestable. Presently, there is no authorized use of the forest resources in the WSA.

Past use of the area included three timber sales. The last sale was held in 1960. These sales removed a total of approximately 4.5 million board feet of timber from 2,500 acres. Many of the cut trees were left in place when it was realized that the operation had become uneconomical. Small sales of Christmas trees took place in the area north of Pelona Peak. Very little of the pinyon-juniper type has been utilized for wood products.

Future commercial use of the forest land on Pelona Mountain would be the utilization of the timber stands by selective cutting to clean out

the mature decadent age classes. Sanitation harvesting and other silvicultural prescriptions, primarily controlled burns and natural fires, would be important applications for the commercial ponderosa stands to promote regeneration opportunities if the stands are to be maintained or improved, and utilized. The present stand conditions represent a declining trend in the succession of a ponderosa forest. If no management is applied to these stands, most of the ponderosa stands in the WSA would be eliminated over the next 200 years as a result of past harvesting methods, a general lack of reproduction, grazing pressure, lack of wild fires, low stand vigor, and an ever increasing encroachment of the pinyon-juniper type.

Presently the site for ponderosa pine is marginal, access is difficult, and harvesting feasibility is questionable. The impact of the timber in the WSA, if offered to the local economy, would be insignificant compared to the volumes that come from the Gila National Forest land. Little demand for timber or fuelwood harvest on Pelona Mountain has occurred in the past 25 years and little is anticipated in the future.

Current recreational use is limited primarily to big game hunting for deer, pronghorn, and occasionally elk, bear, and lion. Off-road vehicle (ORV) use associated with hunting and possibly some exploring are the only recreational ORV uses known to occur. Bat Cave is an archaeological site of such significance that it draws sightseers and interested groups. Occasionally, backpackers and sightseers use the area. Other recreational uses in the area are presently limited by the low levels of public knowledge of the area, the distance from population centers, and the lack of legal access.

The area offers a high potential for backpacking, hiking, hunting, camping, horse packing, nature photography and study, and varied forms of sightseeing.

The Continental Divide crosses Pelona Mountain and presently attracts a few hikers following the route of the Continental Divide National Scenic Trail (CDNST). Should the CDNST actually be routed through the WSA, use would undoubtedly increase. Future use on trail segments across the WSA would probably be less than 100 hikers a year.

F. Education/Research

Bat Cave has been the site of important research into the early domestication of maize in North America. It represents one of the most significant opportunities for archaeological research in the Southwest.

Opportunities for environmental education exist based on the diversity and abundance of wildlife, vegetation, geology, and cultural resources present in the WSA. The distance from population centers, however, will probably limit the direct use of the area for environmental education.



Cottonwood Canyon in Western Portion of the WSA.

G. Wildlife

A wildlife habitat management plan (HMP) developed for the area is designed to improve and protect habitat for bald eagles, mule deer, pronghorn, elk, Merriam's turkeys, tassel-eared squirrels, harlequin quail, and cavity nesting birds. The objectives of the plan are to create more roosts, water sources, and prey species for bald eagles, and to produce more forage for elk, mule deer, and pronghorn. Actions proposed in the plan include prescribed burns (seeding with 40 percent grass, 30 percent forbs, and 30 percent browse), construction of nine wildlife waters, and fencing off some reservoirs from livestock use. When implemented, it will increase the potential of the area as wildlife habitat.

The area has not been identified by the New Mexico Department of Game and Fish (NMDGF) for the reintroduction of any species.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The Continental Divide WSA generally appears natural. The feeling of naturalness in the WSA is enhanced by its large size and topographic variation. Ponderosa pine and pinyon-juniper woodlands cover much of the northwestern third of the WSA and provide a high degree of vegetative screening. These factors reduce the impacts of rangeland developments, vehicle ways, and evidence of past logging in the WSA.

This 68,761-acre WSA contains approximately 45 miles of vehicle ways which vary in nature from washed out logging roads to regularly used ranch access routes. Most of the logging roads have not been regularly used since logging operations ceased in 1960; some of these roads are returning to their former condition. Others have become access routes for ranch operations and have been maintained by the passage of vehicles. Other ways in the WSA have been created to provide access to rangeland developments and pastures on both public and private lands.

Other impacts on the area's naturalness include 28 dirt tanks and 51 miles of fences. The impact of these rangeland developments upon the naturalness of the WSA varies with the type of terrain in which they are found. In the rolling, grassy areas of the WSA, the lack of vegetative screening extends the visual impacts of rangeland developments over a wider area. Portions of the WSA north and west of Pelona Mountain are forested and many rangeland developments are generally not noticeable. However, some impacts are apparent because of the visibility afforded by ridgelines and other topographic features.

Human impacts in the forested areas west and north of Pelona Mountain include old logging roads, and downed timber and stumps left from past logging activity which covered approximately 2,500 acres. The logging operation abruptly ended as some trees were cut and never removed. The impacts of these past human activities are becoming less evident, through natural processes, with the passage of time and do not significantly affect the naturalness of the WSA.

The large size of the WSA coupled with the available topographic and vegetative screening mitigate the human impacts on naturalness and the WSA generally appears natural.

b. Solitude

The remote location and topographic variation in the Continental Divide WSA offer outstanding opportunities for solitude.

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These opportunities are reduced slightly in the rolling grassland sections of the WSA where the open character of the landscape and the lack of vegetative screening increase the area affected by other human activities. Human activities in the area consist primarily of motorized access in support of ranch operations and hunters during hunting season.

Portions of the WSA north and west of Pelona Mountain are forested and this vegetative screening provides a high degree of solitude. There are existing ranch operations requiring motorized access in this area, but the topographic and vegetative screening present would reduce the significance of their impacts.

c. Recreation

Primitive recreation opportunities are highest in the forested, mountainous area in the northwestern portion of the WSA. These opportunities include hunting, various kinds of sightseeing, hiking, and camping. Deer and pronghorn hunting account for most of the current recreational use in the WSA. The varied topography, vegetation, wildlife, and the scenic vistas found in the area provide good sightseeing opportunities. Hiking and camping opportunities are also considered good in the forested parts of the WSA. These opportunities would be enhanced in the future if the proposed Continental Divide National Scenic Trail is routed through the WSA.

The Continental Divide WSA provides outstanding opportunities for primitive and unconfined recreation.

2. Special Features

Wildlife, archaeological, and scenic values are the Continental Divide WSA's most significant special features. The remote, undeveloped character of the region and the diverse vegetation and landforms result in a wide variety of wildlife in the area. The southern and eastern portions of the WSA provide excellent pronghorn habitat. Forested portions of the WSA support a moderate mule deer population as well as mountain lion, black bear, turkey, and wintering elk. Eagles, including at least four wintering bald eagles, are also found in the WSA.

Archaeological sites are not known to be numerous in the area, but this may be the result of the low level of inventory. Known archaeological sites include the highly significant Bat Cave and a historic multi-room masonry structure of unknown origins. Bat Cave is on the National Register of Historic Places. Earlier people, living in the cave on the shores of the extinct Lake Agustin, developed what is believed by some to be the earliest domesticated maize in North America.

The numerous vantage points provided by the mountainous and rolling character of the WSA and the open character of the surrounding landscape result in outstanding scenic vistas. These vistas include the expanse of the Plains of San Agustin to the west and north, and mountains including the San Mateo, Black Range, and the Gila and Aldo Leopold Wilderness Areas to the east and south.

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Continental Divide WSA as being within the Upper Gila Mountains Forest Province with a potential natural vegetation of 4,945 acres of ponderosa pine/Douglas fir forest, 11,112 acres of pinyon-juniper woodland, and 52,704 acres of grama-galleta steppe.

b. Distance From Population Centers

The WSA is within 5 hours driving time of both Albuquerque and Las Cruces, New Mexico.

B. Manageability

Manageability of the WSA as wilderness is reduced by State and private inholdings, poorly defined boundaries in the rolling grassland sections of the WSA, and cherry-stemmed roads. While these factors would complicate wilderness management, the Continental Divide WSA could be managed as wilderness.

Surface inholdings in the WSA total 3,420 acres of State land and 1,680 acres of private land. Reasonable access would be granted by the BLM to the owners of these inholdings.

The surface inholdings in the WSA contain rangeland developments including dirt tanks, a windmill, fences, and vehicle routes. Future noncompatible uses of these private and State inholdings could impact the wilderness values of the WSA.

A private inholding north of Pelona Mountain could present the most significant management problem. It is located at the base of Pelona Mountain and contains the largest body of water in the WSA, as well as a cabin. The presence of these features will require special management attention to avoid conflicts between recreational users and the landowner.

Not enough is known of the mineral potential in this area to fully assess the management problems presented by the subsurface inholdings. The presence of private mineral rights in an area which are believed to have some degree of mineral potential does create a possibility of incompatible uses occurring within the area.

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The lack of topographic barriers to vehicular travel along the eastern portion of the WSA would create trespass problems resulting from existing use patterns. These existing use patterns consist primarily of hunters driving to hunting camps within the WSA. Public education and increased levels of patrolling could reduce, but not eliminate, these problems.

Two roads which are cherry-stemmed into the western and northern portions of the WSA compound the problem of regulating vehicular access. The first enters the northern part of the WSA from Shaw Canyon and provides access to a private inholding containing a cabin owned and used by the Shaw Canyon Ranch. This road is used primarily for ranch operations and by hunters during hunting season. A second road, cherry-stemmed up Cottonwood Canyon, provides access to the western portion of the WSA for ranch operators, BLM personnel, and hunters.

If the Continental Divide WSA is designated wilderness, the lands legally described below should be considered for voluntary acquisition.

Lands Recommended for Acquisition

<u>Legal Description</u>	<u>Acres</u>
State Land	
T. 6 S., R. 13 W., Section 32, All	640
T. 7 S., R. 10 W., Section 16, All	640
T. 7 S., R. 11 W., Section 18, SE $\frac{1}{4}$ NW $\frac{1}{4}$	40
Section 19, N $\frac{1}{4}$ NE $\frac{1}{4}$, E $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NE $\frac{1}{4}$	200
T. 7 S., R. 12 W., Section 16, All	640
Section 28, NW $\frac{1}{4}$ NW $\frac{1}{4}$	40
Section 29, NE $\frac{1}{4}$ NE $\frac{1}{4}$	40
Section 32, All	640
T. 7 S., R. 13 W., Section 16, All	640
TOTAL	3,520
Private Land	
T. 6 S., R. 13 W., Section 31, NE $\frac{1}{4}$ NE $\frac{1}{4}$	40
T. 7 S., R. 11 W., Section 18, SE $\frac{1}{4}$, S $\frac{1}{4}$ SW $\frac{1}{4}$	236.30
Section 19, W $\frac{1}{4}$ NW $\frac{1}{4}$	72.70
T. 7 S., R. 12 W., Section 20, SE $\frac{1}{4}$	160
Section 21, S $\frac{1}{4}$	320
Section 22, SW $\frac{1}{4}$, NW $\frac{1}{4}$ NE $\frac{1}{4}$	200
Section 29, NW $\frac{1}{4}$ NE $\frac{1}{4}$	40
T. 7 S., R. 13 W., Section 36, All	640
T. 8 S., R. 13 W., Section 2, All	640
TOTAL	2,349

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 68,761 acres of public land within the Continental Divide WSA would be recommended suitable for wilderness designation. (See Map 17-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (WMP) (BLM 1981).

1. Impacts on Wilderness Values

Wilderness designation would provide the existing wilderness values in the Continental Divide WSA with long-term Congressional protection. The forested mountains and grasslands would be maintained in a natural condition. Opportunities for solitude would be enhanced by restricting or prohibiting motor vehicle access into the area. Wildlife habitat for such species as pronghorn antelope, mule deer, elk, turkey, mountain lion, and raptors would be maintained in a natural condition. The scenic vistas of the surrounding landscape provided by the mountainous and rolling character of the WSA would be maintained.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would provide protection for the wilderness resources in the Continental Divide WSA.

2. Impacts on Exploration and Development of Tin Resources

Within the WSA, approximately 24,000 acres have a moderate potential for the occurrence of tin. Wilderness designation would preclude surface disturbing forms of exploration which would prevent full determination of the area's tin potential. Because the current potential for tin within the WSA is moderate and a high potential for tin exists outside the WSA, it is expected that any exploration would focus on areas of higher potential outside the WSA and that development for tin would occur outside the WSA. If development were to occur, it would probably be limited to a single mine covering approximately 200 acres in size.

Conclusion. In the long-term, the full assessment of the tin resource could not be determined. Under wilderness designation, the opportunity for exploration and possibly development would be forgone in an area of approximately 24,000 acres with moderate tin potential. While development is not projected, it would probably be limited to a single mine if it were to occur.

3. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 11 CYL per section (13,779 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed within

the WSA to support this level of livestock grazing use include 50 miles of fence, 28 dirt tanks, and a 1/2 mile pipeline. New rangeland facilities are not planned. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy, with permits required when motorized vehicles or equipment are used. Minor repairs to the fences would have to be accomplished on horseback.

Restriction of vehicular use, less than 100 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. Amended Boundary (Proposed Action)

Under this alternative, 37,599 acres would be recommended suitable for wilderness designation and 31,162 acres would be recommended unsuitable for wilderness designation (see Map 17-1).

This amended boundary differs from the boundary proposed in the Draft Environmental Assessment Socorro District Wilderness (BLM 1983). This readjusted boundary alters the original recommendation by including a large area of rolling grassland south of Pelona Mountain, including the area south of Cottonwood Canyon and excluding a small portion along the western edge of the WSA. These boundary adjustments represent an 8,135 acre increase in the area proposed for wilderness designation.

The boundary adjustment proposed in the draft report would have excluded much of the open rolling grasslands from the area suitable for wilderness designation. Comments received on the draft report indicated a high degree of public support for the inclusion of more of the rolling grasslands in the suitable recommendation. The public support for additional grasslands and the lack of conflict with other resource uses resulted in a refinement of the Amended Boundary Alternative.

In 37,599 acres designated as wilderness, vehicle use will be prohibited. Opportunities for exploration and development of minerals would be foregone.

In the 31,162 acres not designated as wilderness, unavoidable adverse effects of the proposed action would result from future surface disturbance activities. Over the long-term, these activities would reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation and special wilderness features. Also, cumulative short-term consumptive uses of this land would lead to long-term degradation of wilderness values. Nondesignation of 31,162 acres as wilderness would leave this acreage available for development which would irreversibly degrade wilderness values and foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

The amended boundary would contain the area of the WSA found to have the highest potential for primitive recreation and the major ecotypes found in the original WSA. Using the Bailey (1976) - Kuchler (1966) Classification System, the amended WSA boundary would contain 4,274 acres of the original 4,945 acres of ponderosa pine/Douglas fir forest ecotype, and 10,771 of the original 11,112 acres of pinyon-juniper woodland ecotype. The grama-galleta steppe represented in the WSA would be reduced from 52,704 acres to 20,590 acres. This would be a significant reduction in the amount of pronghorn habitat represented in the WSA, but other large mammal and raptor habitat would not be significantly reduced.

Projected increases in 5 miles of roads resulting from mineral exploration, new rangeland developments, and increased vehicle access would degrade wilderness values, especially naturalness, in the nonsuitable portion of the WSA. This would, over the long-term, result in a total loss in wilderness character for this area.

Conclusion. Under the Amended Boundary Alternative, approximately 55 percent of the area would be given Congressional protection. This would be 90 percent of the forested mountains and 33 percent of the rolling grasslands. This would be a significant reduction in the amount of pronghorn antelope habitat protected. Wilderness values in the nonsuitable area would be degraded over the long-term due to oil and gas exploration, livestock operations, and increased vehicle access.

2. Impacts on Exploration and Development of Tin Resources

Within the WSA, approximately 24,000 acres have a moderate potential for tin. Wilderness designation would preclude vehicle related and surface disturbing forms of exploration on 16,600 acres which would prevent full determination of the area's mineral potential. About 7,400 acres in the area recommended nonsuitable would be available for exploration. Because the current potential for tin within the WSA is moderate and the potential for occurrence of tin is higher outside the WSA, it is expected that any exploration would focus on areas of higher potential outside the WSA and that development for tin would occur outside the WSA.

Conclusion. The opportunity for exploration and development of 16,600 acres with moderate tin potential would be foregone, resulting in an insignificant adverse impact. While development is unlikely, it is estimated that wilderness designation would probably only forego the potential development of mine covering approximately 200 acres. About 7,400 acres with moderate potential would be available for exploration and development.

3. Impacts on Livestock Grazing Use Levels

The general impacts on livestock operations inside the amended boundary would be the same as those described under the All Wilderness Alternative because conditions are similar throughout the WSA. However, the amended boundary would eliminate allotment specific impacts on two livestock operations (Paddy's Hole and Coyote Canyon) and reduce the impacts to three

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other operations because their operations would only be partially within the wilderness.

Under the Amended Boundary Alternative, two allotments would be completely excluded from the area recommended suitable for wilderness designation. Therefore, any impacts to these operations from wilderness designation would be eliminated. In addition, impacts to three other operations would be reduced since portions of these allotments would be excluded by the amended boundary.

The Wilderness Management Policy allows maintenance of existing rangeland developments and construction of new ones to support existing livestock grazing levels. However, construction of new projects would be restricted as to type of equipment used, type of materials, means or routes of access, and to type of projects that would be allowed. The construction of new improvements would be primarily for the purpose of resource protection and more effective management of resources and existing grazing numbers of livestock, and not to accommodate increased numbers of livestock. Because of these restrictions, wilderness designation would reduce future opportunities to construct new rangeland developments. No new rangeland developments are planned in the foreseeable future anyway, so the effect is slight to negligible.

Conclusion. This alternative would create an inconvenience to the permittees on three allotments, but no impacts on existing livestock grazing use levels would occur. Impacts on two permittees would be completely eliminated.

C. No Wilderness

Under the No Wilderness Alternative, the entire 68,761 acres of public land within the Continental Divide WSA would be recommended nonsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III.

Based on decisions contained in the Divide Management Framework Plan (MFP) (BLM 1983), the most probable uses of the area, if it is not designated wilderness, would be continued livestock grazing and possible mineral exploration. Management actions such as vegetation manipulation, rangeland developments, and watershed and wildlife projects would also occur (see Table 1). Although mineral development in the WSA is considered unlikely, it could occur if economical deposits were located. Continued vehicle use in the WSA could create new routes to such things as new rangeland developments and hunter camps. These probable land uses could produce significant impacts to wilderness values.

1. Impacts on Wilderness Values

The wilderness values of the Continental Divide WSA would not be provided with long-term Congressional protection. Over the long-term, the cumulative impacts of 20 miles of new vehicular access routes, vehicle

use associated with livestock grazing operations, and surface disturbance resulting from mineral exploration. Roads and drill sites and fuelwood and timber harvesting would degrade the natural scenery of the Continental Divide WSA as well as reduce the opportunities for solitude. The area would also be partitioned into parcels less than 5,000 acres as new access routes are constructed. Approximately 10 miles of roads would result from energy and mineral exploration, 5 miles of roads from livestock grazing operations, and 5 miles of roads from timber and fuelwood harvest. Approximately 950,000 board feet of ponderosa pine and 1,500 cords of pinyon-juniper could be harvested over the long-term.

Conclusion. Under this alternative, wilderness values throughout the Continental Divide WSA would be degraded and the majority eventually lost in the long-term as surface disturbing activities would result in 20 miles of new road development. Opportunities for solitude, naturalness, and primitive recreation would be lost on 75 percent of the area.

2. Impacts on Exploration and Development of Tin Resources

There would be no impacts to mineral resources under this alternative. The area could be fully explored, new mining claims located, and the potential for tin resources fully evaluated. Mining activities would be regulated to prevent unnecessary and undue degradation under the Surface Management Regulations (43 Code of Federal Regulations 3809) but development would not be impeded.

3. Impacts on Livestock Grazing Use Levels

Under this alternative, there would be no impacts to livestock operations in the WSA. Grazing use levels are projected to remain the same and there would be no impacts to livestock grazing operations in the WSA.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

The draft wilderness analysis report for the Continental Divide WSA was prepared after considering public input obtained from a variety of sources including mass mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the BLM New Mexico Statewide Wilderness Environmental Impact Statement (EIS).

The Continental Divide WSA was one of New Mexico's ten most discussed areas during the intensive wilderness inventory phase of the wilderness review process. The large size of the WSA and the presence of extensive grasslands which were felt to be underrepresented in the National Wilderness Preservation System were stressed in public support for recommending the entire WSA as wilderness. It was also pointed out that the area appears natural, offers outstanding opportunities for solitude and primitive recreation, and contains supplemental values.

Opponents of wilderness designation for the Continental Divide WSA included some Catron County residents and segments of the mineral and livestock industries. Prominent reasons included the effects of excluding the area from possible future mineral exploration and development, the presence of human impacts, limitations on ranch operations, and the feeling that additional wilderness would conflict with future development in the least developed of New Mexico's Counties.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 27 letters were received. Twenty-four of these letters supported wilderness designation for an area larger than that proposed in the draft. It was noted that the area has high wilderness and wildlife values, diverse landforms and habitats, and that this diversity would be increased through the addition of a larger area of grassland. Maps were also submitted in support of proposed boundary alternatives which would include additional areas of the grassland.

Two letters were received which opposed designation of the area as wilderness. Reasons for this opposition included the mineral potential of the area, especially for tin and base metals; its potential favorability for oil and gas; and the opinion that the area is monotonous and unnatural.

One response did not indicate support or opposition for wilderness designation, but commented on the lack of adequate data concerning livestock use in the amended boundary and on possible conflicts between wilderness designation and the objectives identified in the West Socorro Rangeland Management Program EIS.

The major issues raised during the public comment period concerned the alternative selected by the Area Manager rather than the adequacy of the resource information or impacts presented in the report. It was noted by opponents of wilderness designation that the area's mineral potential, especially for tin, indicates that it should be recommended unsuitable for wilderness designation.

The alternate boundary proposed in public comments represents a new alternative which was not considered in the draft (see Table 6).

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Continental Divide WSA and recommended wilderness designation for the entire WSA. Twenty-three commentators specifically addressed the Continental Divide WSA with 19 commentators favoring designation of the area as wilderness and four opposing it.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Continental Divide WSA by 32 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The BLM defends the amended boundary by claiming that it would reduce resource conflicts. The detailed discussions, however, do not support this claim. Potential for oil and gas, for uranium, or for base and precious metal other than tin in less than 8,000 acres of the excluded eastern portion of the WSA is based on an 'anomalous' sample taken outside the WSA. The only clue to the BLM recommendation is the statement that the amended boundary would completely eliminate impacts on two grazing permittees."

Response: The Amended Boundary Alternative recommends as suitable for wilderness, that portion of the WSA found to have the highest wilderness values, while reducing conflicts with other resources (livestock grazing, mineral exploration and development, and woodland products) in the areas recommended nonsuitable. The Amended Boundary Alternative has previously been enlarged in both the Draft Environmental Assessment Socorro District Wilderness (BLM 1983) and the New Mexico Statewide Wilderness Study/Wilderness Analysis Reports (BLM 1986) to include additional lands as suitable within the confines of the WSA boundary. The additional State and private lands in the Coalition's proposal are located outside the boundary of the Continental Divide WSA. Should at some future date these lands be acquired by BLM, an assessment of their wilderness values

CONTINENTAL DIVIDE

No. 0100 (concluded)

would occur. Should these lands possess wilderness values, BLM would formally study them, and depending upon the results of the study, BLM would make a recommendation either in favor of or opposed to wilderness designation.

Page 17-9, A, 2, a. of the New Mexico Statewide Wilderness Study/Wilderness Analysis Reports (BLM 1986) describes the rationale for the moderate potential for tin within the WSA. The moderate potential for tin was not only based on an "anomalous sample taken outside the WSA," but other information described in the Geology, Energy, and Mineral Assessment Report prepared for the WSA (November 1982).

* * * * *

No. 0118-1

Name(s): Dave Farr

Comment: "I have been to every meeting and commented on the inaccuracy of the maps published by the BLM, in that they do not show existing fences, roads, tanks, houses, man-made improvements on the WSAs."

Response: Table 5 on page 17-12 of the Revised Draft EIS displays rangeland developments within the WSA. Rangeland developments in this table are described by allotments for those developments on public land. They are not displayed on a map.

As a result of fieldwork during the summer of 1986, additional structures were noted in the WSA. These structures, such as old cabins and a weather station, have been included in Table 5 of this Final EIS.

No. 0118-2

Name(s): Dave Farr

Comment: "It says there that a person can drive from the Albuquerque Metropolitan Area to this Continental Divide WSA within 3 hours. That would be an example of a lot of statements in there that are physically impossible."

Response: The statement has been revised in this Final EIS to read 4 hours driving time instead of 3.

APPENDIX 18

DEVIL'S BACKBONE WSA (NM-020-047)

I. GENERAL DESCRIPTION

A. Location

The Devil's Backbone Wilderness Study Area (WSA) is located in Socorro County in central New Mexico. The WSA is situated 15 air miles southwest of the community of Socorro.

The U.S. Geological Survey (USGS) topographic maps covering the WSA are the Puertecito Gap and South Baldy quadrangles. Both of these are New Mexico quadrangles at the 7½-minute scale.

B. Climate and Topography

The WSA is located on the western edge of the Chihuahuan Desert. Maximum summer temperatures range from 90° to 100°F. Winter temperatures are generally mild during daylight hours (40° to 50°F) and moderately cold at night (15° to 30°F). Spring and fall temperatures tend to be mild. The spring season typically is accompanied by winds ranging from 10 to 40 miles per hour.

Precipitation averages 12 inches per year. However, the highest elevation lands (8,000+ feet) average at least 16 inches of precipitation. Over half the annual rainfall is received during the summer thundershower season (July through September). A third of the year's precipitation usually falls during the winter months (December through March). The remaining moisture, normally 10 percent or less, is received in the spring and fall months.

The WSA includes a portion of the rugged and broken southern flank of the Magdalena Mountains. The WSA rises precipitously out of the surrounding desert grassland and culminates in sharp, knife-like ridges and stark, rocky peaks. Elevations range from 5,400 feet to 8,100 feet with a maximum relief of 2,700 feet. The extreme topography is occasionally interspersed with small park-like areas on mountain and ridge tops, on benches, and in the saddles between peaks. Because of the rapid fall-off in relief, canyons are not well developed within the boundaries of the WSA.

C. Land Status

The WSA contains 8,904 acres of public land. (See Map 18-1 for land status within the WSA boundary.) There are no private or State inholdings within the area.

D. Access

There is no legal access to the WSA.

DEVIL'S BACKBONE WSA (NM-020-047)

PROPOSED ACTION-NO WILDERNESS ALTERNATIVE

Legend

— WSA BOUNDARY

Land Status

■ BLM

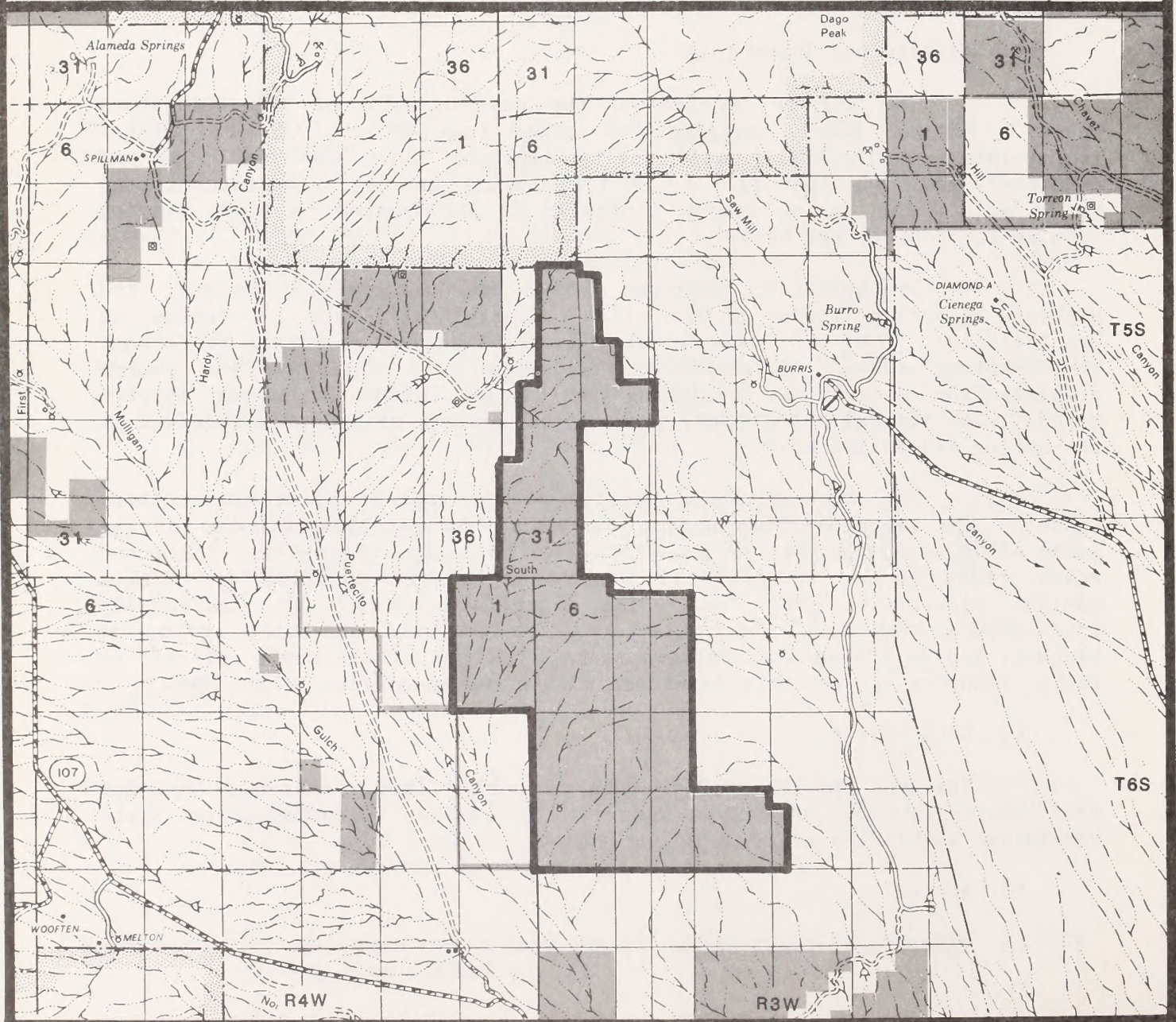
□ PRIVATE

□ STATE

Scale: 1/2 inch=1 mile

MAP 18-1 LAND STATUS

Source: USDI, BLM, Las Cruces District, April, 1986.



E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The No Wilderness Alternative is the proposed action for the Devil's Backbone WSA because the WSA marginally meets the required naturalness criterion and potential for wilderness management conflicts. Several rangeland developments, such as a pipeline and bladed way which bisect the WSA, reduce the naturalness of the area. The opportunities for primitive recreation are not outstanding and there are no significant supplemental values within the WSA.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
--	--

None for this WSA.

Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
--------------------------------	--

Impacts on Cultural Resources	Cultural resources were not selected for detailed analysis because there are no known sites within the area. A detailed site-analysis would be required for any proposed surface disturbing activities.
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Impacts on the Following Endangered Species: Peregrine Falcon (Federally-Listed)	The U.S. Fish and Wildlife Service has concurred with BLM's finding of no affect on species Federally-listed or proposed for listing as threatened or endangered. An analysis of potential impacts to threatened or endangered species would be required for any proposed surface disturbing activities.
--	--

Impacts on Base and Precious Metals	Mineral development was not selected for detailed analysis even though the mineral potential for this WSA has been increased from low to moderate; only exploration is projected. Interest has been nonexistent as no mining claims have been located within the area. Similar areas with moderate mineral potential exist in the region.
-------------------------------------	---

Alternatives Selected for Detailed Analysis	Reasons
--	---------

All Wilderness	8,904 acres were identified during the inventory as having wilderness values.
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No Wilderness (Proposed Action)	The No Action Alternative required by NEPA.
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Environmental Issues Selected for Detailed Analysis

Two primary issues identified for this WSA in the initial scoping of activities, the WAR, and in public comments on the Draft EA are the impacts on the quality of the area's wilderness values and impacts on livestock grazing use levels. No new issues were raised during the preparation of the Draft EIS.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	No Wilderness (Proposed Action)
°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 8,904 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	°MANAGE 8,904 ACRES WITHOUT WILDERNESS PROTECTION. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-Close 5 miles of vehicle ways which currently receive low use (less than 50 vehicles per year).	-Vehicle use would be allowed to continue on 5 miles of vehicle ways. Because of mineral exploration over the long-term, an additional 5 miles of roads are projected for the northern portion of the WSA. Total vehicle use is estimated at less than 50 vehicles per year.
-Require permits for vehicular access to 1 dirt tank and 1 mile of pipeline. No more than one to two trips per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.	-Rangeland and wildlife developments could be maintained without restrictions on vehicle use. These include 7 miles of fences, $2\frac{3}{4}$ miles of pipeline and associated drinking troughs, 1 dirt tank, and 5 wildlife guzzlers.
-5,000 acres with moderate potential for base and precious metals would be closed to energy and mineral leasing and mining claim location.	-5,000 acres with moderate potential for base and precious metals would remain open. It is expected that mineral activity would result in 5-10 drill holes and the construction of an additional 5 miles of roads in the northern half of the WSA. A total of 10-30 acres of new surface disturbance would result.
-Current livestock grazing levels of approximately 7 head per section per year would continue.	-Current livestock grazing levels of approximately 7 head per section per year would continue. Currently, no developments are proposed, but 5 miles of fence and $\frac{3}{4}$ mile of pipeline are projected over the long-term.

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues
	Impacts on Wilderness Values
All Wilderness (8,904 acres)	Wilderness protection would maintain the natural character of the predominantly grass covered ridges and stark, rocky peaks. Interspersed among the higher peaks are scattered stands of pinyon pine and ponderosa pine. The solitude opportunities provided by this broken topography as well as the opportunities for day hikes, photography, and birdwatching would also be maintained.
No Wilderness (8,904 acres) (Proposed Action)	Rangeland management activities and additional vehicle ways from hunting and mineral exploration is expected to occur over the long-term. As a result, naturalness and opportunities for solitude and primitive recreation would be reduced by 50 percent in the northern half of the area.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The geology of the WSA consists of mid-Tertiary volcanic rocks of the Mogollon-Datil province. The structure of the WSA is influenced by mid-Tertiary emplacement of plutons and development of cauldrons. The volcanic rocks of the WSA were formed from lavas erupted along the fractures associated with the cauldrons, each of which produced a distinctive type of lava. In addition, lavas of different compositions were erupted during different periods of time. Basaltic rocks were erupted from cauldrons active 30-39 million years ago, and rhyolite, quartz latite, and basaltic andesite were erupted 20-30 million years ago.

B. Water

The WSA is located within the Rio Grande Basin. There are no permanent streams or surface water bodies within the WSA. However, the normally dry arroyos occasionally carry storm runoff to the Rio Grande immediately after rainfall within their respective drainage areas. Periods of flow are short and may be widely spaced in time due to intermittent and sporadic rainfall patterns. Runoff averages 0.1-0.5 inches per year.

There are no developed ground water sources within the WSA. Ground water in Antelope Well, which is located adjacent to the WSA's southwestern boundary, is considered as representative of the area. Analysis of ground water samples taken from this well indicates it is suitable water quality for livestock purposes.

C. Soils

Approximately 85 percent of the soils in the WSA are shallow gravelly and stony loams derived from volcanic material. The remaining 15 percent are deep gravels on low ridges with small areas of deep loams in swale areas. Slopes in the WSA range from 15 to 75 percent. Rock outcrops occur on the ridge tops and along some of the steep side slopes.

D. Vegetation

1. General

The Devil's Backbone WSA lies entirely within a grassland vegetation type with plant species composition influenced by elevation. The principal plant species found in the lower elevations include black grama, poverty threawn, sideoats grama, fluffgrass, burrograss, and galleta grass. A minor percentage of the lower elevation plant composition may be attributed to woody vegetation with Apacheplume and fourwing saltbush the primary representatives of this group.

Mid-elevational plant species are primarily blue grama, hairy grama, little blue stem, Arizona fescue, mountain mahogany, shrub live-oak, sotol, and alligator juniper. In addition to the previous species, the highest elevations are characterized by scattered stands of pinyon and

ponderosa pine, as well as a few isolated Douglas fir on the highest north-facing slopes.

2. Rare Plant Species

The U.S. Fish and Wildlife Service (FWS) has not listed any threatened or endangered plant species that may occur in the WSA.

E. Wildlife

1. General

Two Standard Habitat Sites (SHS's) have been identified within the WSA. The habitat sites are based on the combination of dominant vegetation and landform. The SHS's support 194 wildlife species, which include 50 mammal species, 50 reptile and amphibian species, and 94 resident and migratory bird species. A complete list of wildlife species found within the WSA is on file at the Socorro Resource Area Office.

Big game species indigenous to the WSA are mule deer and pronghorn. Mule deer in the WSA's core mountain area are abundant relative to the surrounding region. Estimated deer densities for this portion of the WSA are three animals per square mile. Pronghorn are relatively abundant in the surrounding grassland areas at the base of the mountains along the WSA's periphery.

The most common predator is the coyote. The rocky slopes and bluffs also provide habitat for bobcat and gray fox. Mountain lion may occasionally range into the WSA. Common small mammals include desert cottontails, prairie dogs, black-tailed jackrabbits, white-throated woodrats, deer mice, and ground squirrels.

The mountainous topography and numerous rock outcrops are attractive to birds of prey. One golden eagle eyrie is known to be present in the WSA. Other birds which are commonly sighted include red-tailed hawks, sparrowhawks, horned larks, pinyon jays, and ravens.

Reptiles likely to be encountered are the collared lizard, eastern fence lizard, bullsnake, and the western diamond-backed rattlesnake.

2. Threatened or Endangered Fauna Species

The FWS furnished the BLM information about one Federally-listed endangered animal species, the American peregrine falcon, which may occur in the WSA. This species was included in a biological assessment (BLM 1982) which concluded that the WSA provides poor quality nesting habitat and there are no current or historically occurring eyries. In addition, little potential habitat exists for supporting migrating individuals as the WSA lacks a sufficient prey base and available water.

F. Visual

The WSA includes the rugged, grass dominated southern flanks of the Magdalena Mountains. Topographic relief is dramatic, landscape

diversity is high, and scenic vistas from within the WSA are characteristically spectacular, especially during morning and evening hours.

G. Cultural

No cultural sites have been recorded within the WSA. Seven sites have been recorded within a 12-kilometer radius of the WSA. These site types vary from lithic scatters to historic habitation sites with temporal spans ranging from 4000 B.C. to 1930's historic structures. Although cultural sites may be present within the WSA, density is anticipated to be low.

H. Air

Generally, the quality of the air within the Devil's Backbone WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May) when strong gusty winds result in dust storms.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources.

1. Energy Minerals

As of April 15, 1986, there were no mineral leases in the WSA.

a. Oil and Gas

Paleozoic formations underlying the area include adequate source and reservoir rocks, but faulting associated with the cauldron formation and the Rio Grande rift preclude entrapment of oil and gas in significant quantities. The WSA is considered to have low potential for the production of these resources.

b. Geothermal

The WSA is within the Socorro Peak Geothermal Leasing Area. Although the WSA has a heat flow which suggests a somewhat anomalous heat source, there is no evidence of underlying magma chambers as in the Socorro Known Geothermal Resource Area to the north. In addition, no warm springs are known to exist in the WSA. The area is considered to have low potential for geothermal resources.

c. Uranium

The Santa Fe formation could be a host for stratabound uranium deposits because it contains uranium-rich volcanic source rocks, permeable horizons, and may contain reactants such as organic matter. The WSA is partly underlain by the Santa Fe formation, but it is unlikely to be very thick. The WSA is considered to have low potential for the occurrence of uranium.

2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA.

a. Manganese

The volcanic rocks within the WSA are favorable for the occurrence of hydrothermal manganese deposits. One known manganese occurrence is within a mile of the WSA and one is within the WSA, but there has been no production from either location. The WSA was intensely prospected during the 1940's and 1950's, and no major deposits were discovered. The WSA is considered to have low potential for discovery of manganese resources.

b. Base and Precious Metals

There has been minor gold production to the north and west of the WSA from volcanic rocks similar to those in the area. The WSA does

not contain any known gold occurrences, but 5,000 acres are considered to have moderate potential for discovery of base and precious metals. (See Map 18-2.) The mineral potential of base and precious metals was changed from low to moderate as a result of recent information obtained on the area.

c. Kaolin

At Socorro Peak, to the north of the WSA, rhyolite has been hydrothermally altered to kaolin. Hydrothermal alteration of the volcanic rocks within the WSA could have caused kaolinization. The WSA is considered to have low potential for kaolin.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE DEVIL'S BACKBONE WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Paleozoic sedimentary rocks	Low	--
Geothermal	Igneous intrusives along the Rio Grande rift	Low	--
Uranium	Stratabound deposits within the Tertiary to Quaternary Santa Fe Group	Low	--
Nonenergy Minerals			
Manganese ^{a/}	Hydrothermal deposits along shear zones and faults within Tertiary volcanics	Low	--
Base and Precious Metals	Tertiary volcanics and cauldron margins	Moderate	5,000
Kaolin	Hydrothermally altered Cenozoic volcanics	Low	--

Notes: *Acreage was not calculated for areas with low potential.

^{a/}Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

B. Watershed

The WSA is located within the Puertecito Gap watershed. It is characterized by a complex of different soils, slopes, and exposures.

DEVIL'S BACKBONE WSA (NM-020-047)

PROPOSED ACTION-NO WILDERNESS ALTERNATIVE

MAP 18-2

MINERAL RESOURCE POTENTIAL*

Legend

— WSA BOUNDARY

Land Status

■ BLM

□ PRIVATE

□ STATE

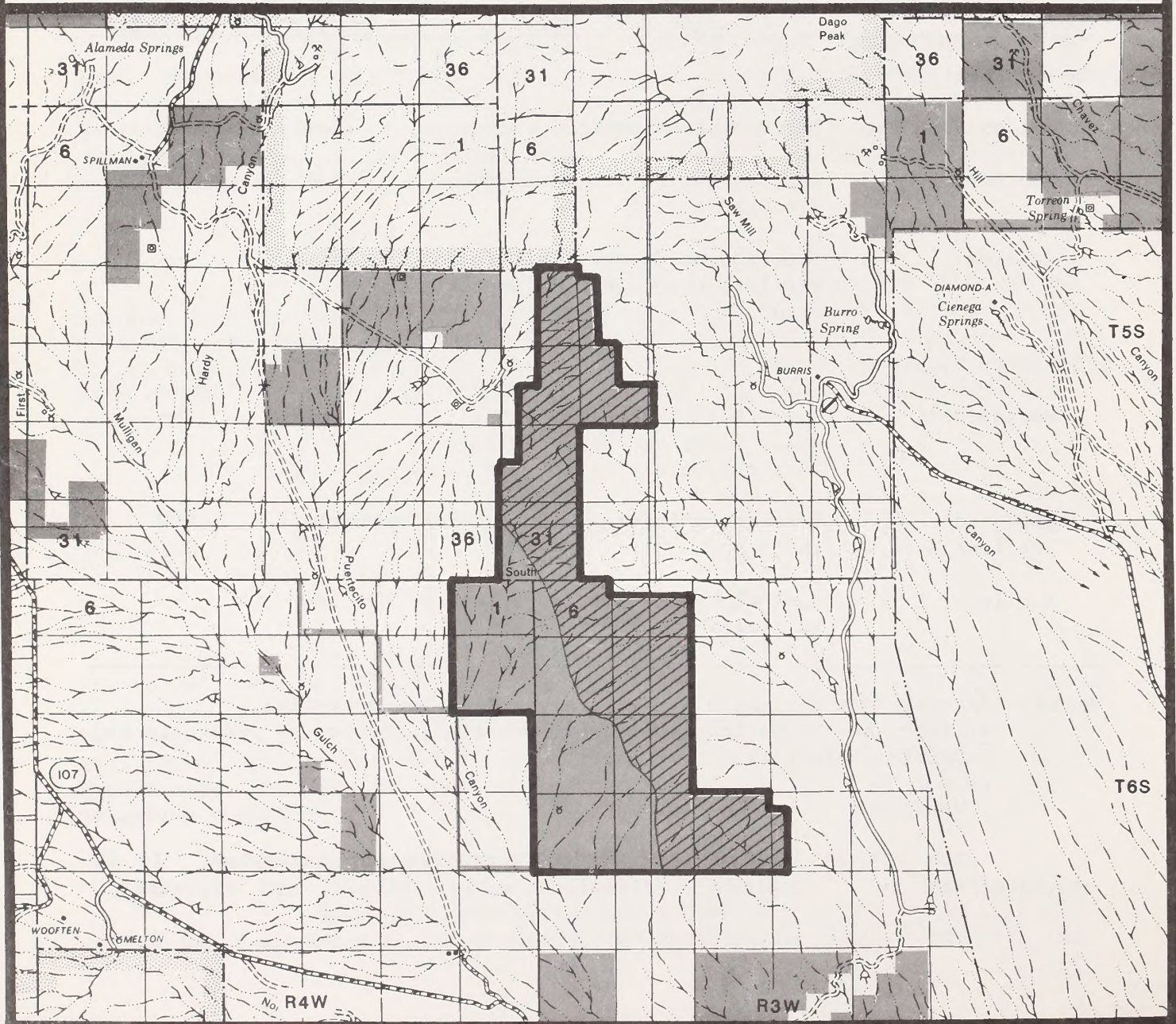


Base and Precious Metals

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Scale: 1/2 inch = 1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



Physiographic features include pediment slopes, rolling hills, and mountain slopes. The majority of soils are coarse textured with moderate to slow permeability and high runoff potential. Current erosion conditions for most of the WSA are rated as stable and slight. There are only small areas where erosion is expected to increase. There are no water control structures or land treatments within the WSA.

C. Livestock Grazing

1. Allotments

Four grazing allotments lie partially within the WSA. The VL Ranch and the Antelope Well allotments are owned and operated collectively by one permittee. The Puertecito Gap and the SO Ranch allotments are separate ranching units. All four allotments are run as cow-calf operations.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
SO Ranch 1281	3,410	656	1,760	334	51%
VL Ranch 1267	2,310	420	2,200	399	95%
Antelope Well 1257	9,146	1,020	40	000.25	0%
Puertecito Gap 1321	5,331	659	4,904	600	91%
TOTAL			8,904	1,333.25	

2. Ranch Management

Permittees periodically inspect and maintain developments through the use of motor vehicles with the exception of fence maintenance, which is performed primarily on horseback.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development
SO Ranch 1281	1 $\frac{3}{4}$ miles of fence 1 $\frac{3}{4}$ miles of access route 1 $\frac{3}{4}$ miles of pipeline
VL Ranch 1267	2 $\frac{1}{2}$ miles of fence $\frac{3}{4}$ mile of access route
Antelope Well 1257	$\frac{1}{4}$ mile of fence
Puertecito Gap 1321	2 $\frac{1}{2}$ miles of fence 2 $\frac{1}{2}$ miles of access route 1 mile of pipeline with 2 drinking troughs 1 dirt tank

Note: ^{a/}Information shown in tables reflects only
Federal acres and animal unit months (AUMs),
and rangeland developments on public land.

3. Potential Rangeland Developments

No additional rangeland developments are proposed in the WSA at this time. In the long-term, it is expected that 5 miles of fence and 1 mile of pipeline would be installed.

D. Recreation

Although the WSA is relatively close to the community of Socorro in terms of air miles, it is an isolated, difficult-to-reach area in terms of on-the-ground access.

Existing recreational use of the WSA is low except during the deer hunting season, when moderate use occurs. In addition to deer hunting, existing primitive recreational use is limited to occasional day hikes. Potential primitive recreation opportunities are discussed in Chapter IV.

The recreational use of the WSA is not expected to increase within the foreseeable future.

E. Education/Research

The WSA is not currently being utilized for any known research or educational purpose.

The WSA lies in an ecotone between various elements of the Chihuahuan Desert, the Colorado Plateau, and the Upper Gila Mountains Forest

ecological provinces. Research and environmental education potential for ecosystem studies may be high.

F. Wildlife

The WSA was included in the Nogal Canyon Habitat Management Plan (BLM 1981). Five wildlife water catchments (inverted umbrella type) were installed in the WSA as proposed by the plan in 1981 and 1982. No additional habitat improvements are planned for the WSA.

The WSA has not been identified by the New Mexico Department of Game and Fish for the reintroduction of any species.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The WSA generally appears natural. However, vehicle ways and numerous rangeland developments have impacted the apparent naturalness. A water pipeline crosses the northern third of the WSA which has adversely affected the naturalness values. Installation of the pipeline resulted in considerable surface disturbance (cuts with a bulldozer are common) which would be difficult to rehabilitate. A substantially noticeable vehicle route is located along this pipeline. In addition, a substantially noticeable way runs south into the WSA for a distance of 1 mile. These developments reduce the naturalness of a portion of the WSA.

Other human impacts in the WSA are less significant. They include: 5 wildlife guzzlers, 1 dirt tank, 7 miles of fences, 1 mile of pipeline with drinking troughs, and 5 miles of vehicle ways. The majority of these intrusions are located along the WSA's periphery. Except for allotment fencing, the southern half and northern quarter of the WSA are natural.

Since the cumulative impacts of these developments are substantially unnoticeable when considering the entire WSA, this area marginally meets the required naturalness criterion.

b. Solitude

The WSA is isolated, little visited, difficult to access, and rugged. The topographic diversity and geographic setting provide outstanding opportunities for solitude.



Overview of the Devil's Backbone WSA.

c. Primitive and Unconfined Recreation

The scenic values of the WSA, especially in terms of scenic vistas from within the area, are appealing. However, being a rugged desert range, the WSA is not generally considered recreationally inviting. The only exception is for deer hunting. This situation notwithstanding, the WSA can provide visitors with opportunities to experience a natural desert mountain environment suited to day hiking, backpacking, horseback riding, nature and landscape photography, natural history activities (e.g., birdwatching) and environmental exploration. The area is most attractive to these recreational pursuits during late fall and winter. These opportunities were rated as outstanding during the wilderness inventory.

2. Special Features

There are no special features within the WSA.

3. Multiple Resource Benefits

The WSA contains a variety of natural resource values as a result of its undisturbed character. Designation of the WSA as wilderness would provide a greater degree of long-term protection for these natural values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Devil's Backbone WSA as being in the Chihuahuan Desert Province and the Upper Gila Mountains Forest Province with a potential natural vegetation of 3,904 acres of grama-tobosa shrubsteppe, 4,000 acres of grama-galleta steppe, and 1,000 acres of pinyon-juniper woodland.

b. Distance From Population Centers

Three cities identified in the 1980 census as Standard Metropolitan Statistical Areas (SMSAs), are located within 5 hours driving time of the WSA. Albuquerque and Las Cruces, New Mexico, are within 3 hours and El Paso, Texas, is within 4 hours driving time.

B. Manageability

Factors which affect the manageability of the Devil's Backbone WSA include location and configuration of the boundary, and existing rangeland developments.

From a topographic standpoint, this boundary is difficult to locate on-the-ground. Land acquisition to consolidate the WSA's boundary would be desirable to improve on-the-ground identification of the boundary. The WSA is relatively small and much of its northern half is a mile wide or less. These factors negatively impact the BLM's ability to manage the area as wilderness.

DEVIL'S BACKBONE

A buried water pipeline and associated vehicle way bisect the northern third of the WSA. Because of the rugged rocky terrain of the WSA, the maintenance frequency of this pipeline is high. This pipeline and associated maintenance route reduce the BLM's ability to manage this portion of the WSA for naturalness or outstanding opportunities for solitude.

While none of these factors in themselves render the area unmanageable, the cumulative effects reduce the BLM's ability to manage the WSA as wilderness.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 8,904 acres of public land within the Devil's Backbone WSA would be recommended suitable for wilderness designation. (See Map 18-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981). Activities such as road construction and mineral exploration and development would be prohibited.

1. Impacts on Wilderness Values

Wilderness designation would provide long-term Congressional protection for the wilderness values present in the area. This long-term protection and management would prevent uses that would degrade the naturalness of the grassy ridgeline and stark, rocky peaks in this area. Necessary vehicular access to rangeland developments could reduce naturalness and opportunities for solitude. The presence of over 7 miles of fence, 2 miles of pipeline and 1 dirt tank affect the capability of managing the area to provide high quality recreational opportunities. Wilderness recreationists are unable to hike along the ridge of Devil's Backbone or around the base of the mountain without viewing the fences and other rangeland or wildlife developments.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would preserve the wilderness values in the Devil's Backbone WSA.

2. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 7 head per section per year (2,755 AUMs). Under BLM's Wilderness Management Policy (WMP), there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include 7 miles of fence, 1 dirt tank, and 2 $\frac{3}{4}$ miles of pipeline. Currently, new rangeland facilities are not planned; however, 5 miles of fence and 1 mile of pipeline are projected in the long-term. Maintenance of the existing facilities is allowable under the BLM WMP, with permits required when motorized vehicles or equipment are used. Minor repairs to fences would have to be accomplished on horseback.

Conclusion. Because of restricted vehicular access, an inconvenience to the livestock operator would result; however, the overall impacts on livestock grazing would not be significant. No impacts on existing livestock grazing use levels would occur.

B. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the entire 8,904 acres of public land within the Devil's Backbone WSA would be recommended nonsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III. The most probable uses of the area would be continued low levels of recreational use, livestock grazing, mineral exploration, and wildlife management for pronghorn. An additional 5 miles of access roads associated with grazing and mineral exploration activities would be developed.

In the 8,904 acres not designated as wilderness, unavoidable adverse effects of the proposed action will result from future surface disturbance activities. Over the long-term, these activities will reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation. Also, cumulative short-term consumptive uses of this land will lead to long-term degradation of wilderness values. Nondesignation of 8,904 acres as wilderness would leave this acreage available for development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

The wilderness values of Devil's Backbone would not be provided with long-term Congressional protection. In the long-term, additional rangeland management actions, mineral exploration and development (5 miles of new access), and continued vehicle use in support of ranching and recreational activities could reduce naturalness and influence opportunities for solitude and primitive recreation in 50 percent of the WSA. Additional roads would encourage more vehicle use in the area, both on and off-road. The majority of this activity is expected to occur in the northern half of the WSA.

Conclusion. In the long-term, the mineral exploration would result in new roads and trails which would result in the loss of naturalness and a diminishment in the quality of solitude and recreation opportunities in 50 percent of the WSA.

2. Impacts on Livestock Grazing Use Levels

All rangeland developments would be checked and maintained on a convenience basis using motorized equipment. The permittees would be allowed to use vehicles to check cattle. Livestock grazing would continue at the levels currently existing (approximately 7 head per section per year). Grazing use levels are projected to remain the same and there would be no impacts to livestock grazing operations in the WSA.

Conclusion. There would be no impacts on livestock grazing.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report has been prepared with public input obtained by large mailings, public meetings, open houses, and personal contacts. These efforts began during the Wilderness inventory phase and will continue during the preparation of the Statewide Wilderness EIS.

Public involvement in the wilderness inventory and study process has indicated both support for and opposition to designation of the Devil's Backbone WSA as a wilderness area. Reasons cited have concentrated on the WSA's naturalness and solitude values.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 17 letters were received. Nine respondents supported wilderness designation for Devil's Backbone. Reasons for this support centered around the area's wilderness and wildlife values. The BLM's assessment of management difficulties resulting from the configuration of the boundary was also questioned, and it was noted that the BLM erred in its statement that wilderness designation would require the BLM to attempt to acquire adjacent lands to produce a topographically identifiable land unit with recognizable boundaries.

Eight respondents opposed wilderness designation for the Devil's Backbone WSA. Among the reasons cited were potential mineral resources, including manganese and geothermal potential, and that the area was too confined and encroached upon by man-made intrusions to provide a high quality wilderness experience. Agreement was also expressed concerning BLM's assessment of the manageability of the area.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985). BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Devil's Backbone WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the Devil's Backbone WSA by 6 commentators all of whom supported wilderness designation.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Devil's Backbone WSA by 24 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The BLM is recommending the no wilderness alternative for Devil's Backbone WSA on the basis of 'potential for wilderness management conflicts' and claims that the area only marginally meets the naturalness criterion, that opportunities for primitive recreation are not outstanding, and that the area has no significant supplemental values. The Coalition strongly disagrees with this assessment and proposes a wilderness area consisting of essentially all of the WSA, plus 6,560 acres of contiguous roadless State land. The addition would enhance the wilderness values of the area and reduce management conflicts associated with the narrowness of the northern portion."

"The BLM states that the cumulative impacts of the intrusions are 'substantially unnoticeable when considering the entire WSA' and that 'except for allotment fencing, the southern half and northern quarter of the WSA are natural.' The Coalition feels that the BLM has overstated the impact of the pipeline and the way in the northern third of the WSA in the final assessment. The pipeline was not listed in the 1980 Intensive Wilderness Inventory Report, which called the unit 'essentially pristine.' Nor has it been noticed by Coalition members on field trips into the area.

The BLM's contention that the area offers less than outstanding recreational opportunities is totally unjustified. The area is isolated and seldom visited, but those who do visit find it a most inviting place, contrary to the BLM's assessment."

Response: The BLM concurs with the Coalition's statement that opportunities for primitive and unconfined recreation are outstanding within the Devil's Backbone WSA. BLM has corrected this error in the Final. However, these opportunities are only available in the southern portion of the WSA--approximately 6,500 acres. The northern half of the WSA lacks outstanding opportunities for solitude and primitive and unconfined recreation due to its narrow configuration and impacts associated with livestock developments and mining activity adjacent to the northwest boundary of the WSA. Scars from the pipeline and mining activity are visible from many ridgelines in the northern 2,400 acres.

BLM also partially concurs with the Coalition's statement that the addition of 6,560 acres of contiguous State land "would enhance the wilderness value of the area and reduce management conflicts associated with the narrowness of the northern portion." If the BLM acquired the State land at some future date and determined that the land possessed wilderness values, BLM would formally study the land. Depending upon the results of the study, BLM would make a recommendation either in favor of or opposed to wilderness designation.

No. 0100 (concluded)

The BLM is assuming that the supplemental values of the Preserve for Scientific Research (PSR) described in the Coalition's response are those within the Langmuir Research Site. As described in the Cibola National Forest Land and Resource Management Plan, dated July 1985, the management area is where "protection of clean atmospheric conditions is emphasized to meet research objectives of Langmuir Laboratory." These "supplemental values" are located outside the boundary of the WSA. The Cibola National Forest land adjacent to the WSA has been released from further wilderness review.

APPENDIX 19

EAGLE PEAK WSA (NM-020-019)

I. GENERAL DESCRIPTION

A. Location

The Eagle Peak Wilderness Study Area (WSA) is located in Catron County in west-central New Mexico. The WSA is approximately 6 air miles west of Quemado.

The U.S. Geological Survey topographic maps covering the WSA are the Armstrong Canyon, Blaines Lake, Lake Armijo, Tejana Mesa, Tejana Mesa SW, and Zuni Salt Lake quadrangles. All of these are New Mexico quadrangles at the 7½-minute scale.

B. Climate and Topography

Eagle Peak has a generally mild, semiarid climate. Precipitation is normally received during the warmer 6 months of the year. Half of the annual average precipitation falls from July through September, primarily from brief but often heavy thundershowers. Winter is usually the driest season. The WSA receives 9 to 14 inches of precipitation annually.

Temperatures in the summer average in the 80's during the days and in the 40's at night. Winter temperatures normally range from the 40's during daylight hours to the low teens at night. Temperature extremes range from -30°F in winter to over 100°F in summer. Mean annual maximum and minimum temperatures for the area are 65°F and 30°F, respectively. The growing season averages 103 days and usually lasts from the middle of June to the end of September. The prevailing winds over the WSA are from the southwest.

The Eagle Peak WSA consists of rolling topography broken by sandstone and basalt mesas and canyons. Volcanic features, including large cinder cones and associated lava flows, are also present and result in a topographically diverse WSA. Elevations range from 6,400 feet to 7,550 feet, with the highest elevations occurring in the eastern portion of the WSA.

C. Land Status

The WSA contains 43,960 acres of public land including 10,892 acres of split-estate (Federal surface, non-Federal subsurface). There are 160 acres of State and 840 acres of private inholdings. (See Map 19-1 for land status.)

EAGLE PEAK WSA (NM-020-019)

Proposed Action-No Wilderness Alternative

Legend

- WSA BOUNDARY
- - - AMENDED BOUNDARY

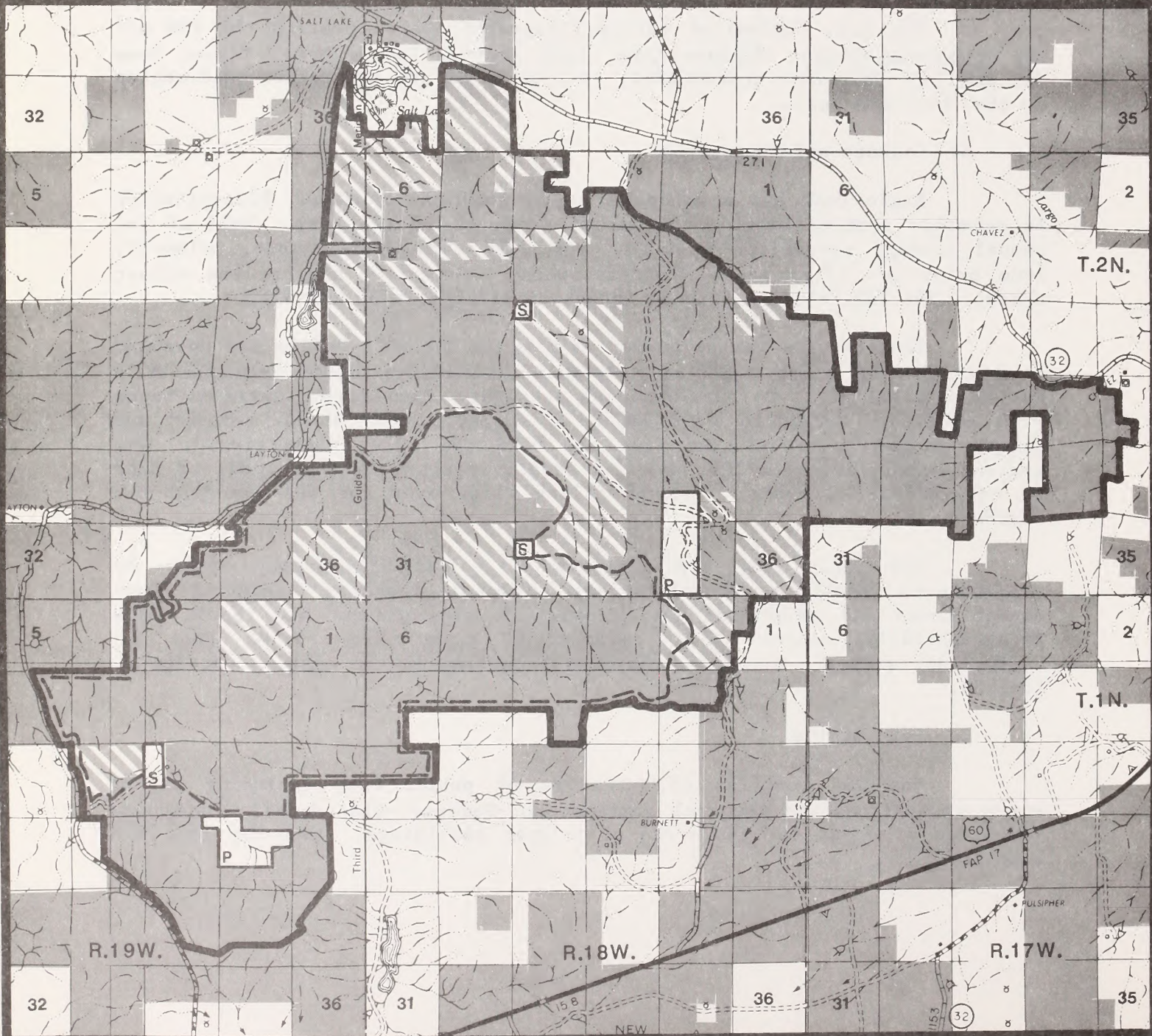
Land Status

- BLM
- P PRIVATE
- S STATE
- BLM SURFACE/NON BLM SUBSURFACE

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.

MAP 19-1 LAND STATUS



D. Access

The WSA has good physical and legal access. State Highway 32 is adjacent to portions of the northern boundary of the WSA and County Road A007 parallels the western edge of the WSA. Numerous unimproved ranch access routes traverse the WSA from north to south and east to west.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposed action and alternatives is provided in Table 1. The No Wilderness Alternative is the proposed action for the Eagle Peak WSA primarily because of the marginal quality of naturalness. A secondary factor relates to manageability concerns from significant non-Federal subsurface holdings with moderate potential for uranium resources.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
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None for this WSA

Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
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Impacts on Saleable Minerals (Cinders, Sand and Gravel)	Within this WSA, there are 2,500 acres with moderate potential for sand and gravel and 1,500 acres with moderate potential for cinders. The impacts on these resources would not be significant because of the availability of similar materials elsewhere; therefore, a detailed analysis is not included.
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Impacts on Cultural Resources	Cultural resources were not selected for detailed analysis because resource development potential is low and a detailed site analysis is required prior to authorizing any proposed surface disturbing activities.
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Impacts on Coal	The potential for economic coal deposits is low, therefore, a significant impact is not projected.
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Impacts on Potential Habitat for Threatened or Endangered Animal Species: Black-footed ferret Bald eagle	One endangered species (bald eagle) is known to winter in the WSA. The U.S. Fish and Wildlife Service has concurred with BLM's finding of no effect on species Federally-listed or proposed for listing as threatened or endangered. An analysis of potential impacts to threatened or endangered species would be required for any proposed surface disturbing activities.
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Alternatives Selected for Detailed Analysis	Reasons
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All Wilderness	43,960 acres were identified during the inventory as having wilderness values.
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Amended Boundary	17,290 acres identified by Wilderness Coalition.
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No Wilderness (Proposed Action)	The No Action Alternative required by NEPA.
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Environmental Issues Selected for Detailed Analysis

The four primary issues for this WSA are the impacts on the quality of the area's wilderness values, impacts on uranium exploration, and impacts on livestock grazing use levels.

The wilderness values issue is required by the BLM Wilderness Study Policy. The Eagle Peak WSA does provide outstanding opportunities for solitude and primitive and unconfined recreation. However, the naturalness of the WSA is of low quality due to the numerous access routes, rangeland and watershed developments and their maintenance.

Maintaining wilderness values and providing access to private inholdings (surface) and State inholdings (subsurface minerals) for exploration, development, or other uses is also a concern.

Mineral potential within the Eagle Peak WSA primarily consists of moderate potential for uranium and cinder resources. Concerns regarding mineral potential include restrictions to mineral exploration under wilderness designation, as well as the potential impacts to the wilderness values of the WSA resulting from mineral exploration and development if it is not designated as wilderness.

Livestock grazing use levels is an issue for this WSA. Additional concerns include the inconvenience to livestock operators from vehicle restrictions under wilderness designation, as well as an expected increase in vandalism and livestock harassment if it is not designated wilderness.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
<p>*MANAGE TO MAINTAIN OR ENHANCE WILDERNESS VALUES ON 43,960 ACRES. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Close 49½ miles of vehicle ways which currently receive low use (less than 100 vehicles per year).</p> <p>-Require permits for vehicular access to maintain 8 dirt tanks, 1 windmill, 2 storage tanks, and 3 miles of pipeline and drinking troughs. No more than one trip per year is anticipated. Casual vehicle use for inspections and minor repairs would be precluded.</p> <p>-Current livestock grazing use levels of approximately 8 head per section per year would continue.</p> <p>-Woodcutting would not be permitted.</p> <p>-33,068 acres of Federal mineral estate would be closed to energy minerals leasing.</p> <p>-33,068 acres of Federal mineral estate would be closed to mining claim location. The closed area includes 8,000 acres with moderate potential for uranium.</p> <p>-33,068 acres would be closed to mineral material sales. The closed area includes 2,500 acres with moderate potential for sand and gravel and 1,500 acres with moderate potential for clinders.</p> <p>-Reasonable access to 10,892 acres of non-Federal mineral estate (State managed) would be permitted with consideration for protecting wilderness values. Due to moderate potential for uranium in the area, it is expected that mineral exploration would occur in the long-term, resulting in 15 to 30 drill holes and up to 15 acres of</p>	<p>*MANAGE TO MAINTAIN OR ENHANCE WILDERNESS VALUES ON 17,290 ACRES. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Close 8 miles of vehicle ways which currently receive low use (less than 50 vehicles per year).</p> <p>-Require permits for vehicular access to maintain 3 miles of pipeline, 2 storage tanks and troughs. No more than one trip per year is anticipated. Casual use for inspections and minor repairs would be prohibited.</p> <p>-Current livestock grazing use levels of approximately 8 head per section per year would continue.</p> <p>-Woodcutting would not be permitted.</p> <p>-14,410 acres of Federal mineral estate would be closed to energy minerals leasing.</p> <p>-14,410 acres of Federal mineral estate would be closed to mining claim location. The closed area includes 7,400 acres with moderate potential for uranium.</p> <p>-14,410 acres would be closed to mineral material sales. The closed area includes approximately 1,400 acres with moderate potential for clinders.</p> <p>-Reasonable access to 2,880 acres of non-Federal mineral estate (State managed) would be permitted with consideration for protecting wilderness. Due to moderate potential for uranium in the area, it is expected that mineral exploration would occur in the long-term, resulting in 5-10 drill holes and up to 5 acres of surface disturbance. Up to 3 miles of new roads and</p>	<p>*MANAGE 43,960 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Vehicle use would be allowed to continue on 49½ miles of vehicle ways. Because of woodcutting and mineral exploration and development over the long-term, an additional 18 miles of vehicle roads are projected for the central and southwestern portions of the WSA. Total use is estimated at less than 200 vehicles per year over the long-term.</p> <p>-No permits would be required for vehicle access.</p> <p>-Current livestock grazing (cattle) use levels of approximately 8 head per section per year would continue over the long-term.</p> <p>-Woodcutting would be permitted. A greenwood cut area about 500-1,000 acres in size could be established within the WSA. There are 9,000 cords of standing greenwood available within the WSA. An additional 5 miles of new access routes are projected to occur over the long-term.</p> <p>-33,068 acres would remain open to energy minerals leasing, mining claim location and mineral material sales. This includes 8,000 acres of moderate potential for uranium, 2,500 acres of moderate potential for sand and gravel, and 1,500 acres of moderate potential for clinders. Due to moderate favorability, it is expected that exploration for uranium would occur resulting in a total of 20 to 40 drill holes in areas of moderate potential. No development is projected, but if a single mine results from the exploration it would disturb 10 acres. Road access to the mine is described below. A low level of development is also projected for saleable minerals resulting in 1 to 2 sales per year in areas of moderate potential for clinders. Total surface disturbance would range from 5 to 40 acres. There would be an additional 4 to 8 miles of new access roads.</p> <p>-Access to 10,892 acres of non-Federal mineral estate (State managed) would be permitted without consideration for protecting wilderness values. Due to moderate potential for uranium in the area, it is expected that mineral exploration would occur in the long-term resulting in 10 to 20 drill holes. Up to 15 acres of</p>

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES
(Continued)

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
surface disturbance. Up to 5 miles of new vehicle access routes, roads, and ways would be required. Access would be allowed which causes least lasting impact to wilderness while meeting the needs of the subsurface inholder.	ways would be required. A low level of development would result in an additional 20 to 30 acres of surface disturbance. Access would be allowed which causes least lasting impact to wilderness while meeting the needs of the subsurface inholder.	surface would be disturbed and up to 5 miles of new access roads would be constructed.
-Attempts would be made to acquire 11,052 acres of State-owned mineral rights and 160 acres of surface inholdings within the WSA.	-Attempts would be made to acquire 2,880 acres of State-owned mineral rights and 120 acres of surface inholdings within the suitable area.	-No special attempts would be made to acquire State and private lands or mineral rights.
-Attempts would be made to acquire 840 acres of private surface.		
	MANAGE 26,670 ACRES WITHOUT WILDERNESS PROTECTION.	
	-Vehicle use would be allowed to continue on 41½ miles of vehicle ways. Because of woodcutting and mineral exploration over the long-term, an additional 8-10 miles of vehicle roads are projected for the central and southwestern portions of the WSA. Total use is estimated at less than 150 vehicles per year over the long-term.	
	-No permits would be required for vehicle access.	
	-Current livestock grazing use levels of approximately 8 head (cattle) per section per year would continue over the long-term.	
	-Woodcutting would be permitted. A greenwood cut area about 500 acres in size could be established within the WSA. There are about 6,000 cords of standing greenwood available within the nonsuitable area. An additional 3 miles of new access routes are projected to occur over the long-term.	
	-18,658 acres would remain open to energy minerals leasing, mining claim location, and mineral material sales. This includes 600 acres of moderate potential for cinders, and 2,500 acres of moderate potential for sand and gravel. Due to moderate favorability, it is expected that exploration for uranium would occur, resulting in a total of 10-20 drill holes in areas of moderate potential. Currently, no development is projected, but if a single mine results from the exploration, it would disturb 10 acres. Road access to the mine is described below. A low level of development is also projected for saleable minerals resulting in 1 to 2 sales per year in areas of moderate potential for sand, gravel, and cinders. Total surface disturbance would range from 5-30 acres. There would be an additional 2-6 miles of new access roads.	
	-Access to 8,012 acres of non-Federal mineral estate (State managed) would be permitted without consideration for protecting wilderness values. Due to moderate potential for uranium in the area, it is expected that mineral exploration would occur in the long-term resulting in 5-15 drill holes. Up to 12-15 acres of surface would be disturbed and up to 3-5 miles of new access roads would be constructed.	
	-No special attempts would be made to acquire State and private lands or mineral rights.	

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues	
	Impacts On Wilderness Values	Impacts on Exploration Uranium Resources
All Wilderness (43,960 acres)	The natural character of the Eagle Peak WSA's sandstone and basalt mesas as well as the outstanding opportunities for solitude, sight-seeing, hiking and camping, and cultural sites consisting of petroglyphs, campsites and villages from the Archaic period to the homesteading era would be maintained. Up to 30 drill holes would result in approximately 15 acres of surface disturbance and up to 5 miles of new ways and roads would be constructed if private rights are exercised on the split-estate land. This would reduce the quality of naturalness on 10% of the WSA.	Based upon past interest in the area, no exploration in the short-term is expected to occur. In the long-term, energy and mineral exploration would be precluded on 8,000 acres of moderate uranium potential.
Amended Boundary (17,290 acres recommended suitable, 26,670 acres recommended nonsuitable)	The southern portion of the WSA's mesas and canyon land country would be maintained in a natural condition. This would maintain the area's solitude and primitive recreation opportunities as well as wildlife habitat and cultural resources. About 60% of the non-suitable area is rolling juniper covered hills while the remaining nonsuitable country is sandstone cliffs and basalt mesas. Construction of 8 to 10 miles of vehicle routes and mineral exploration in this area would result in a total loss of wilderness values in the region.	Based upon past interest in the area, no exploration in the short-term is expected to occur. In the long-term, energy and mineral exploration would be precluded on 7,400 acres of moderate uranium potential. No restrictions would apply on 600 acres of moderate uranium potential in the non-suitable area. Approximately 93% of the moderate uranium potential would be precluded from development.
No Wilderness (43,960 acres) (Proposed Action)	In the long-term, wilderness values, particularly naturalness, would be adversely affected by uranium exploration. The road network which would be developed for mineral exploration would create several roadless areas of about 5-8,000 acres in size. Opportunities for solitude, hiking, and camping within these areas would be reduced in quality. Removal of vegetation and disturbance of the soil resulting from this activity would create a visual impact for approximately 20-30% of the WSA.	No significant impact on energy or mineral resources is expected.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Eagle Peak WSA lies within the southern portion of the Colorado Plateau. Gently southeastward-dipping sediments of Cretaceous and Tertiary age dominate the surface of the WSA. Natural erosion of these sediments has produced mesas of low relief throughout the area. Flows of Quaternary basalts and numerous related cinder cones occasionally cap the older formations within the vicinity. Thin Quaternary alluvium also forms the surface of a significant portion of the central part of the WSA.

Exploration wells drilled within the region indicate that Precambrian granite, Permian sediments, and Triassic sediments occur beneath the surficial deposits.

In general, sedimentary rocks which originally covered exposed Precambrian granite, were regionally uplifted and eroded. These sediments were then, in part, covered with Tertiary volcanic sediments and intruded and capped by Quaternary basalts.

B. Water

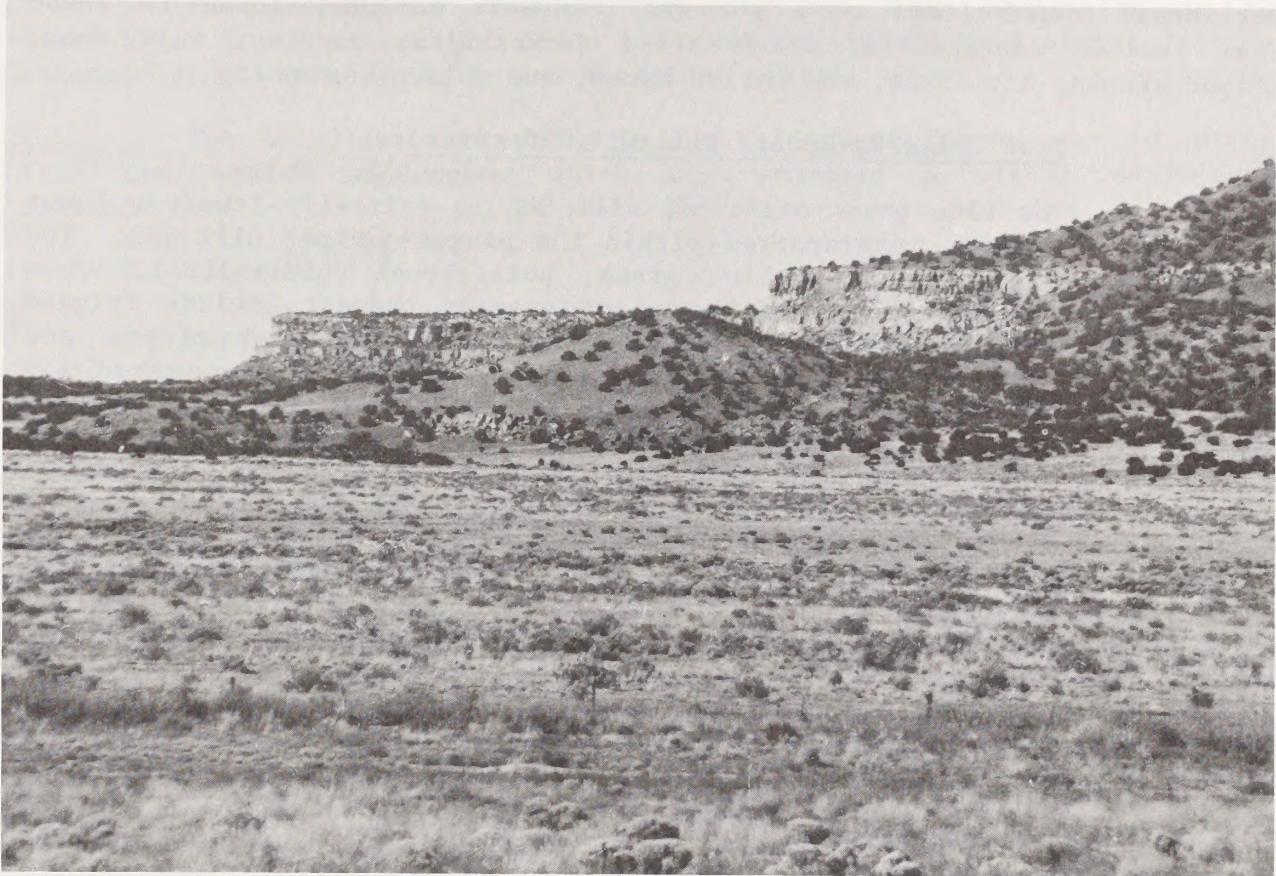
The Eagle Peak WSA is located in the Little Colorado River sub-basin. Drainage ways are not deeply entrenched and are subject to flash floods following spring snow melt and heavy localized summer thundershowers. Flash floods generally are confined to tributaries and are dissipated in the mainstreams. Earthen type reservoirs designed to catch and store runoff normally contain water 6 months of the year.

The source of all water in the Little Colorado sub-basin is precipitation. No ground water is known to enter the basin from outside areas. Most rock formations present will yield enough ground water locally to supply stock needs. The alluvium of stream valleys and holson fill are the most important ground water reservoirs in the WSA. There is a large volume of ground water available for development in the Little Colorado sub-basin, but is so distributed as to make recovery in large amounts uneconomical. In general, ground water from stream-valley alluvium and holson deposits is of good quality and suitable for domestic and stock uses. Total dissolved solids average 250 parts per million (ppm), but can range up to 3,000 ppm. Ground water from intrusive and volcanic rocks is generally of good quality but tends to be more highly mineralized. In the sedimentary rocks of Cambrian to Cretaceous age, ground water is usually highly mineralized.

C. Soils

The soils in Eagle Peak were formed in a variety of parent materials, including sandstone, shale, basalt, volcanic ash, and cinders.

Approximately one-third of the area is composed of soils which formed in volcanic ash or cinders. These soils are on gently sloping to rolling slopes and have a slight water erosion hazard.



Sandstone Mesas.

Another one-third of the area has soils that developed over basalt or sandstone. The water erosion hazard on these soils is slight except on steep slopes.

There are two small areas of erosive soils in the WSA. The fine textured soils that occur in broad swales and drainage ways and the soils on steep rocky side slopes of mesas, badlands, and canyons have a high water erosion hazard and would be easily damaged by surface disturbance.

D. Vegetation

1. General

In the Eagle Peak WSA, the following Standard Habitat Sites (SHS's) are present:

Pinyon-Juniper Hill (24,090 acres)

The pinyon-juniper hill SHS occurs primarily on hills and steep slopes and in places, is found on flats next to the slopes. Principal vegetation, other than pinyon-juniper, includes blue grama, mountain mahogany, oak, and rubber rabbitbrush, with fringed sage, winterfat, and

EAGLE PEAK

bottlebrush squirreltail also present. Animals commonly found in these areas include cottontails, black-tailed jackrabbits, coyotes, mule deer, striped skunks, kit foxes, red-tailed hawks, and golden eagles.

Blue Grama-Snakeweed Hill (14,580 acres)

The blue grama-snakeweed hill SHS is primarily found on lower hills and in openings interspersed within the pinyon-juniper hill SHS. The principal vegetation includes blue grama, bottlebrush squirreltail, broom snakeweed, and annual forbs. Other plant species present include fringed sage, winterfat, galleta, Apacheplume, oak, and scattered pinyon and juniper. The aspect is usually short and mid-grasses, with scattered low shrubs. Common animals in this area include black-tailed jackrabbits, coyotes, kit foxes, pronghorn, red-tailed hawks, and golden eagles.

Russian Thistle-Alkali Sacaton Valley (5,290 acres)

This SHS is found primarily in large, flat bottomlands and low spots. Principal vegetation, other than Russian thistle and alkali sacaton, includes fringed sage, winterfat, bottlebrush squirreltail, and annual forbs. Common animals in this area include cottontails, black-tailed jackrabbits, coyotes, and pronghorn.

2. Rare Plant Species

The WSA contains habitat which offers potential for the occurrence of eight threatened or endangered plant species.

E. Wildlife

1. General

The Eagle Peak WSA supports approximately 306 wildlife species including 57 reptile and amphibian species, 74 mammal species, and 175 resident and migratory bird species. A complete list of wildlife species occurring in the Eagle Peak WSA is available for review at the Socorro Resource Area Office. A description of characteristic wildlife species present in the WSA is included in the Vegetation section above.

2. Threatened or Endangered Fauna Species

In addition to the characteristic wildlife species present, the WSA has been identified by the U.S. Fish and Wildlife Service as providing potential habitat for bald eagles, peregrine falcons, and black-footed ferrets; all Federal endangered species. Wintering bald eagles are known to occur in the WSA.

F. Visual

This large WSA contains scenery rated as Visual Resource Management (VRM) Classes II and III.

The scenery in most of the WSA has been designated as VRM Class III. It is an area of mesas and open grasslands with visual interest enhanced by volcanic features and sandstone cliffs.

The VRM Class II scenery in the Cottonwood Canyon area is derived from the eroded sandstone, which has produced a visual environment characterized by vertical relief and colorful erosional features.

G. Cultural

Portions of the WSA were the subject of a Class II Cultural Resource survey conducted by the University of Tulsa in 1979. This survey, which covered approximately 6,400 acres in the WSA, identified 63 archaeological sites ranging from petroglyphs to campsites and villages. These sites represent human habitation from the Archaic period (6000 BC to Christian Era) to the homesteading era. Based on the results of the Class II survey and project specific inventories, cultural resource values in the WSA are considered to be high.

The cultural values of the WSA are enhanced considerably by the presence of Zuni Salt Lake immediately north of the WSA. The Lake has long been a source of pure salt. Early man probably visited the site; however, whether it served as his salt supply is unknown. Indian ruins dating back 1,000 years have been found in the area, which give evidence of the prehistoric importance of the area. Because of the availability of this nutritional necessity, the Indians of the Southwest, including the Acoma, Laguna, Zuni, Apache, and Navajo, have built up extensive religious beliefs concerning the area. Many tribes continue to make pilgrimages to the Lake to gather domestic salt and to worship. Among the deities believed to inhabit the area are the Twin War Gods and Salt Mother. With the arrival of the Spaniards in 1540, the Lake became known historically when they praised the quality of the salt in their journals. Zuni Salt Lake, in addition to being a source of salt and ceremonial significance, was considered to be neutral ground, regardless of current hostilities.

H. Air

Generally, the quality of air within the Eagle Peak WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

This situation could be altered in the future due to the presence of two coal-fired generating plants in Springerville and St. Johns, Arizona, approximately 30 miles west of the WSA. Air quality is affected at times in the spring, when gusty southwestern winds cause dust to blow.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resources potential of the lands within the WSA is shown on Table 3 and Map 19-2. The location of lands under mineral leases is shown on Map 19-3.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE EAGLE PEAK WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Paleozoic and Mesozoic continental and marine sedimentary rocks	Low	--
Coal	Mesaverde Group continental margin sedimentary rocks	Moderate	43,960
Uranium	Sandstone channel and unconformity-related deposits within Tertiary and Cretaceous sedimentary rocks	Moderate	8,000
Nonenergy Minerals			
Sand and Gravel	Quaternary and Tertiary fluvial sediments	Moderate	2,500
Cinders	Quaternary basaltic cinder cones	Moderate	1,500

Note: *Acreage was not calculated for areas with low potential.

1. Energy Minerals

As of April 15, 1986, there were three post-Federal Land Policy and Management Act (FLPMA) oil and gas leases in the WSA.

a. Oil and Gas

Ten exploratory oil and gas wells and deep water wells have been drilled within the Quemado area; however, none of them were within the WSA. This local drilling verified that a sequence of oil and gas reservoir and possible source rocks occurs in the area. Available information suggests a low potential for oil and gas resources in the WSA. Any positive evidence of oil and gas in the region could stimulate exploration attempts within the WSA.

EAGLE PEAK WSA (NM-020-019)

Proposed Action-No Wilderness Alternative

MAP 19-2 MINERAL RESOURCE POTENTIAL*

Legend

- WSA BOUNDARY
- - - AMENDED BOUNDARY

Land Status

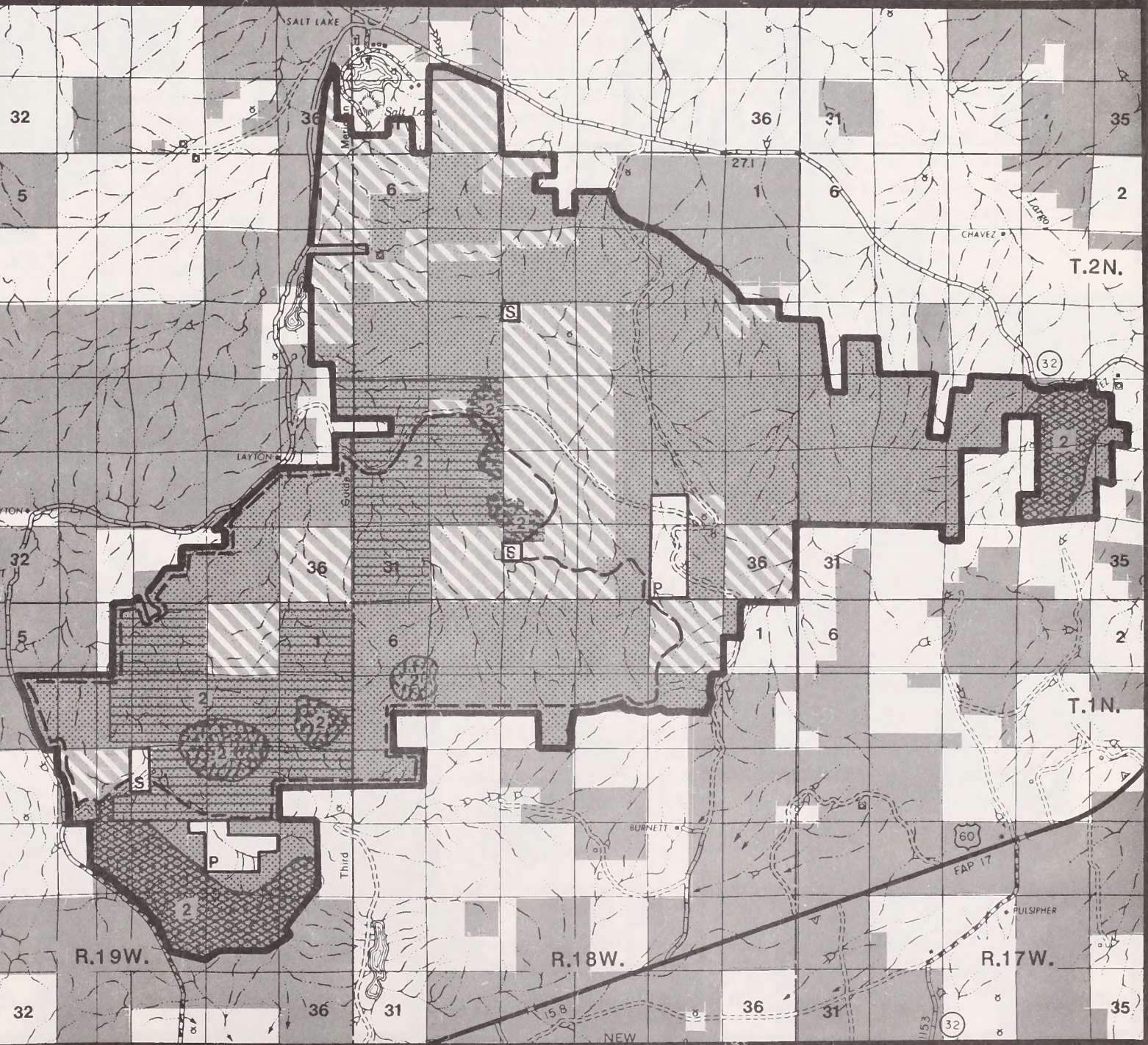
- BLM
- PRIVATE
- STATE
- BLM SURFACE/NON BLM SUBSURFACE

- Clinders
- Uranium
- Sand and Gravel
- Coal

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.

* Areas of moderate (2) potential are shown for lands within the WSA except for split-estate land; the potential may extend onto the split-estate land and outside the WSA boundary. Areas of low potential are not shown.



EAGLE PEAK WSA (NM-020-019)

Proposed Action-No Wilderness Alternative

MAP 19-3

MINING CLAIMS AND MINERAL LEASES*

Legend

— WSA BOUNDARY
- - - AMENDED BOUNDARY

Land Status

■ BLM
□ P PRIVATE
□ S STATE
▨ BLM SURFACE/NON BLM SUBSURFACE



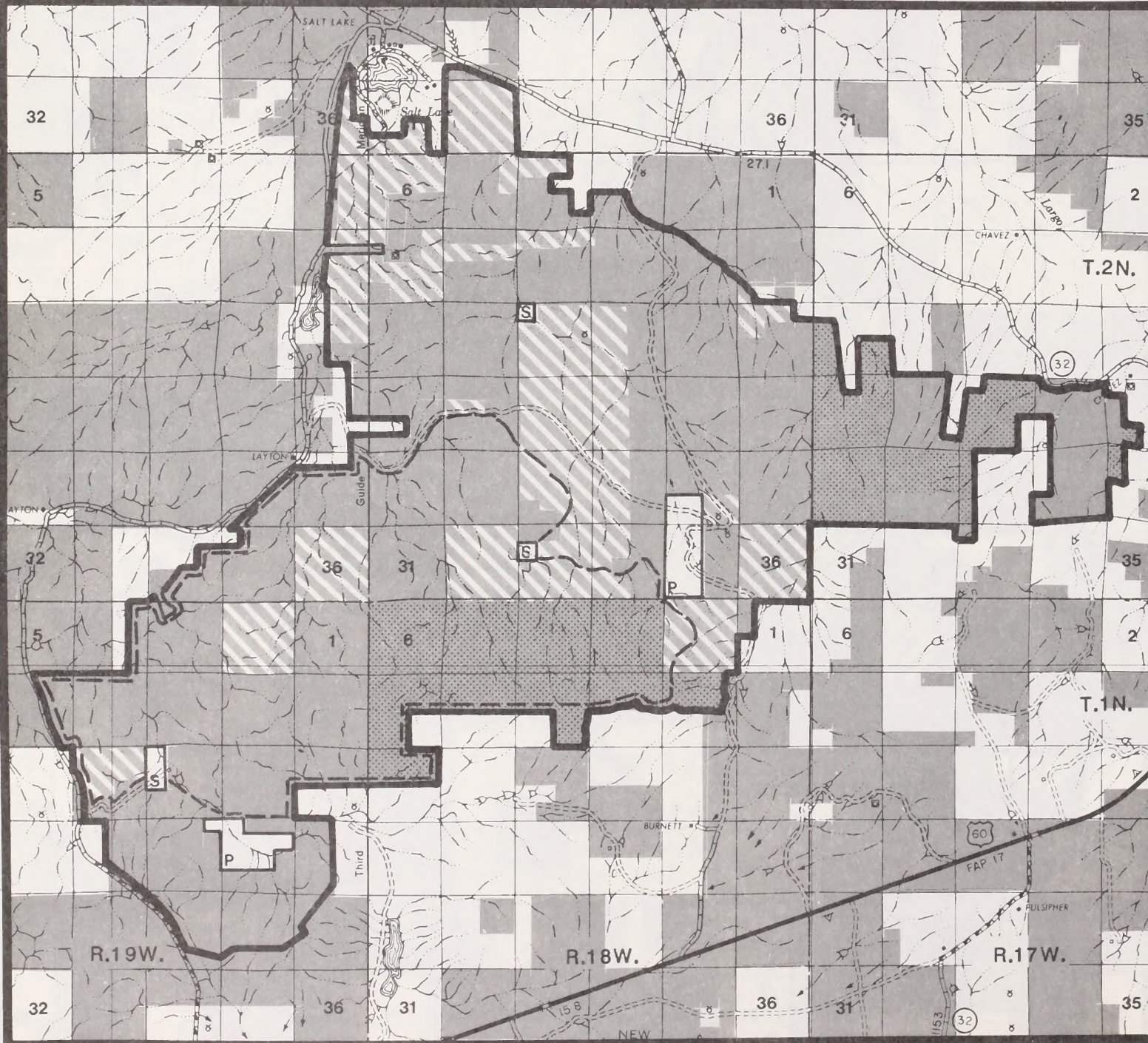
Post-FLPMA Oil and Gas Leases

FLPMA was passed October 21, 1976.

*No mining claims were recorded with the BLM within the WSA as of April 15, 1986.

Scale: 1/2 Inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



b. Coal

Private and government exploration in areas 15 to 20 miles northeast of the WSA have identified possible economic coal reserves within the Mesaverde group. Since the Mesaverde group occurs shallowly in much of the WSA, it has received a moderate potential rating. However, the potential for economic coal deposits is low because the coal would occur in thin beds at depth.

c. Uranium

Within the WSA, uranium mineralization is associated with the Baca formation and the Point Lookout sandstone of the Mesaverde group. Initial exploration within and adjacent to the WSA has identified sub-economic uranium mineralization within the Baca formation. The wide spacing of the drill holes used to investigate the area's uranium potential could have left areas of more favorable uranium mineralization undetected. Considering a possible revival of the uranium industry, the WSA has a moderate potential for uranium resources.

Several hundred mining claims were recorded in 1978 with the BLM for the area along and within the southeastern margin of the WSA where the Baca formation crops out. The Energy Reserves Group and Teton Exploration Drilling located these claims for potential uranium mineralization. Nine uranium test holes were drilled within the southernmost group of claims, four of which were along the southern border of the WSA. Five additional test holes were also drilled within the southeast-central portion of the WSA. This exploration, which occurred between 1979 and 1981, detected sub-economic uranium mineralization. If economic and political conditions again favor the uranium industry, the region containing the WSA could be a target for exploration. Currently, there are no mining claims within the WSA, which could be attributed to economic conditions or results of past mineral exploration within the WSA.

2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA.

a. Sand and Gravel

Thick sand and gravel deposits occur locally within the Quaternary alluvium, the Baca formation, and the volcanic sediment facies of the Datil formation. These deposits comprise a large portion of the WSA's surface. The majority of the material consists of gravels and cobbles of quartzites, quartzose sandstones, arkosic sandstones, and assorted volcanic rocks. Potential gravel resources could possibly be needed for improving roads adjacent to the WSA. A moderate potential for the identification of economic sand and gravel deposits exists within the WSA.

b. Cinders

There are several excellent sources of cinders within the WSA. These cinder cones are associated with flows of Quaternary basalts. The WSA's cinder deposits are of excellent quality and could be used for any

of the typical lightweight aggregate or landscaping purposes associated with this type of material. The excellent cinder deposits within the WSA have poor access which reduces their economic significance. Development of these resources would depend on future population increases within the vicinity due to their high bulk, low value nature. A moderate potential exists for cinder resources in the WSA.

B. Watershed

Eagle Peak is located within the Blaines Lake and Quemado watersheds. All lands within these watersheds have been classified as productive areas. Most of the area has been rated as being in the moderate erosion class, although some areas in the WSA are in a critical erosion class. The critical erosion class indicates a large amount of soil movement and the presence of many rills and gullies. A watershed plan will be developed on portions of the Mesa Ranch and watershed work will be done to improve the critical erosion areas to moderate. Runoff averages 0.5 to 1 inch per year with erosion amounting to 0.2 to 0.5 acre-feet per square mile per year.

C. Livestock Grazing

1. Allotments

Parts of four grazing allotments are within the Eagle Peak WSA (see Table 4). The four allotments graze livestock in the WSA and utilize a year-round cow/calf operation. The Rancho Allegre Cattle Company and Eager-Red Hill allotments have approved Allotment Management Plans (AMP) in cooperation with the BLM. These AMPs consist of planned rangeland developments and scheduled livestock moves. Most of the planned rangeland developments have been constructed. The Largo Creek and Mesa Ranch allotments graze livestock in the WSA according to forage availability.

TABLE 4
ALLOTMENTS WITHIN THE WSA^a/

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Rancho Allegre 0070	79,578	11,880	37,911	5,702	48%
Eager-Red Hill 0050	5,220	864	2,350	389	45%
Largo Creek 0102	5,059	708	770	106	15%
Mesa Ranch 0035	3,599	504	2,929	408	81%
TOTAL			43,960	6,605	

2. Ranch Management

The day-to-day ranch operations in the WSA consist of checking on livestock condition, forage condition, supplementing salt or protein, livestock water availability, breaking ice on livestock waters, and performing maintenance on fences, dirt tanks, a windmill, and pipelines (see

Table 5). Most of the daily ranch operation is conducted using pickups or other vehicles. Normal maintenance of various rangeland developments would include motorized vehicles such as a pickup truck, a bulldozer to clean the dirt tanks, a tractor with backhoe to repair or replace pipeline, and a drill rig to maintain the windmill.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development
Rancho Allegre 0070	19 miles of interior fence 11 miles of boundary fence 5 dirt tanks 3 miles of pipeline 2-5,000 gallon storage tanks 2 drinking troughs
Eager-Red Hill 0050	2 dirt tanks 1 windmill 2 drinking troughs 7 miles of fence
Largo Creek 0102	1 dirt tank
Mesa Ranch 0035	4 miles of boundary fence

Note: ^{a/}Information shown in tables reflects only
Federal Acres and animal unit months (AUMs),
and rangeland developments on public land.

3. Potential Rangeland Developments

No additional rangeland developments are planned within the WSA at this time.

D. Timber Harvest

The Eagle Peak WSA is generally of an open character with scattered pinyon and juniper woodlands occurring on the ridges, mesa sides, and hilly areas. The woodlands are composed primarily of one-seed juniper, except in the southern portions of the WSA where pinyon pine is mixed with the juniper. Most of these woodlands are of small size and volume, being in open stands and occurring on the steeper terrain of the area.

Past use of the area's woodland resources has been limited primarily to one area $\frac{1}{2}$ mile southeast of the Eagle Peak WSA just north of the Burnett Ranch Headquarters. Historic woodcutting has occurred in this area.

EAGLE PEAK

Eagle Peak contains approximately 9,000 cords of standing greenwood. For this reason, the WSA has a potential for firewood and post cutting. This potential is enhanced by the easy accessibility afforded by the numerous vehicle routes which exist in the area.

Since the woodcutting area was authorized southeast of the WSA boundary, people are familiar with this portion of the WSA. As a result, illegal woodcutting has taken place throughout the area. Both illegal and legal woodcutting trends, as supported from past sales and contacts, will continue to increase. Controlling the growing illegal use of the woodlands may become more of a management problem than the authorization of proper use.

E. Recreation

Current recreational use is limited primarily to deer hunting, rockhounding, and some exploring. Recreational off-road vehicle (ORV) use is also associated with these activities. Zuni Salt Lake, adjacent to the northern portion of the WSA, draws sightseers and those interested in the history of the area.

The area offers opportunities for backpacking, hiking, camping, nature photography, and other activities. Presently, there is little recreational use in the WSA. This is probably the result of limited public knowledge of the recreational resources present, uncertainty over land ownership, and distance from population centers.

ORV and other recreational uses in this area may increase in the future if coal development occurs in the Fence Lake area north of the WSA. If this development occurs, it is anticipated that the Quemado area would experience an increase in vehicle-dependent recreation.

F. Education/Research

The cultural resources and volcanic features present in the WSA offer opportunities for archaeological and geological research.

Opportunities for environmental education exist based on the wildlife, vegetation, geology, and cultural resources present in the WSA. The distance from population centers, however, would probably limit the direct use of the area for environmental education.

G. Native American

As was noted earlier, Zuni Salt Lake (on private land north of the WSA) is an important Native American religious site. However, it is not known at this time if religious uses centered at Zuni Salt Lake also take place inside the WSA.

H. Realty Actions

No applications for rights-of-way or easements have been received, nor is any public land within the WSA withdrawn.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of the Mandatory Wilderness Characteristics

a. Naturalness

The Eagle Peak WSA has diverse landforms ranging from sandstone mesas and volcanic cinder cones to gently rolling hills and lava flows. Vegetation in the WSA is characterized by scattered pinyon-juniper woodlands interspersed among short grasslands.

The human impacts in the WSA consist of rangeland developments and access routes which support livestock grazing. The Eagle Peak WSA contains 12 livestock watering structures (dirt tanks and drinking troughs along pipelines), 2 storage tanks, 1 windmill, about 40 miles of fences, 4 miles of inconspicuous buried pipeline, and 1 mile of electric powerline, which is "cherry-stemmed" into the northwestern portion of the WSA. Access to these rangeland developments is provided by 60 miles of vehicle routes. These vehicle routes vary in quality from dim two-track ways to well used major ranch access routes.

The impacts in this WSA are not typically screened from view by topography or vegetation. This lack of screening causes existing impacts to extend their visual influence over a wide area.

Because impacted areas occur in all but the extreme eastern portion of the WSA, there appears to be little potential for boundary adjustments to improve the naturalness of the WSA.

The cumulative effect of human impacts is considered to reduce the level of perceived naturalness in the Eagle Peak WSA.

b. Solitude

The Eagle Peak WSA has numerous topographic features and wooded areas which provide outstanding opportunities for solitude. These opportunities are greatest in the wooded mesas of the extreme eastern part of the WSA and the mesas and canyons in the southern and southwestern portions of the WSA.

Higher elevations of the WSA, because of the greater visibility afforded, offer less potential for avoiding the evidence of human activities than the well-screened canyons and mesa edges.

c. Primitive and Unconfined Recreation

Outstanding opportunities for primitive recreation in the WSA consist primarily of sightseeing, hiking, and camping. The primitive nature of these opportunities is reduced by the large number of rangeland developments scattered throughout the WSA. Sightseeing opportunities are provided by the geology of the area, which includes sandstone mesas and

volcanic cinder cones. The geology of the area also provides some rockhounding opportunities for small pieces of petrified wood and agate. Large raptors, including golden eagles, add interest to sightseeing in the WSA. Deer and pronghorn also may be seen, but are not common. The cultural resources of the area, especially the rock art which can be found on many of the sandstone mesas, also provide sightseeing opportunities. The geology and wildlife add interest to hiking or camping in the WSA. Extended camping would be limited, however, by the lack of water other than livestock waters for recreational users. Deer hunting occurs in the WSA, but is limited by low populations of mule deer.

2. Special Features

The Eagle Peak WSA contains significant archaeological values representing human habitation since archaic times (approximately 6000 BC). Volcanic features, including a series of cinder cones, also add significance to the area. The WSA also provides habitat which supports year-round use by golden eagles and occasional use by wintering bald eagles.

3. Multiple Resource Benefits

The Eagle Peak WSA contains a variety of natural values, including archaeological resources, interesting geologic features, large raptor habitat, and watershed values.

Congressional designation as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would the administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Eagle Peak WSA as being in the Colorado Plateau Province with a potential natural vegetation of 19,960 acres of grama-galleta steppe and 24,000 acres of pinyon-juniper woodland.

b. Distance From Population Centers

The WSA is within 5 hours driving time from Albuquerque and 5½ hours driving time from Las Cruces, New Mexico.

B. Manageability

Subsurface ownership patterns present a significant problem for management of the WSA as wilderness. Mineral rights under 10,892 acres of public land are in private ownership. These split-estate lands are concentrated in the center of the WSA, but are also found in scattered sections throughout the WSA. The extent and location of these private rights precludes adjusting the boundaries to produce a more manageable area.

The impacts to wilderness values in the WSA from providing access to these subsurface inholdings is difficult to assess at this time. Incompatible uses are expected to occur, however, because private rights exist in an area believed to have moderate uranium potential. Recently, interest in coal development has shifted north of the WSA about 15 miles due to new information.

The existence of extensive private mineral rights in an area believed to have potential for mineral development will limit the ability of the BLM to protect wilderness values in this WSA. The exercise of these private rights through mineral exploration and development would preclude managing the Eagle Peak WSA as wilderness in the long-term.

Surface ownership patterns include 840 acres of private inholdings (with minerals) and 160 acres of State land. While not as extensive as the subsurface inholdings, these surface inholdings would also create manageability problems. One of the surface inholdings presents a special problem for wilderness management because it contains a large diesel powered water pump. The sound of the diesel motor, when running, can be heard in a wide area around the inholding.

Manageability of the area as wilderness would be enhanced by the acquisition through voluntary exchange of 10,892 acres of private mineral rights and 1,000 acres of surface inholdings. This acquisition would reduce the possibility of incompatible uses, occurring in the WSA, if it is designated as wilderness and reduce problems, arising from providing reasonable access to these inholdings.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 43,960 acres of public land within the Eagle Peak WSA would be recommended suitable for wilderness designation. (See Map 19-1 for WSA boundary.)

1. Impacts on Wilderness Values

Wilderness designation of the entire 43,960-acre WSA would exclude prospecting and mineral development on 33,068 acres where subsurface rights are in public ownership except on valid mining claims and leases. It would also prohibit the filing of new claims and issuing of mineral leases and restrict most motorized vehicle and equipment operation. Furthermore, the building of up to 18 miles of new roads would also be prohibited.

Prohibiting mineral exploration and new road development would protect 75 percent of Eagle Peak's existing natural character and opportunities for solitude and primitive recreation. The 10,892 acres of subsurface mineral rights and potential mineral resources in the WSA reduce the ability of the BLM to control surface uses to protect all of the wilderness characteristics.

Exploration and possible development of the mineral rights within the central portion of the WSA and necessary motorized access could not be prohibited under wilderness management. The exercise of these rights would produce levels of incompatible uses which would significantly impact the marginal naturalness, solitude, and primitive recreation opportunities of surrounding lands throughout the central portion of the WSA.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would provide some benefit to maintaining the marginal wilderness resources in the Eagle Peak WSA; however, access to extensive mineral and private inholdings within the central portion of the WSA would result in the degradation of these wilderness values.

2. Impacts on Exploration of Uranium Resources

Although approximately 8,000 acres of Federal mineral estate in the Eagle Peak WSA have moderate potential for uranium, there are no existing mining claims in the area. After wilderness designation, the location of new mining claims would not be allowed.

Since additional exploration for locatable minerals would also be prohibited, the minerals industry could be affected in the long-term since the full uranium potential of the area could not be assessed. Other more suitable areas for exploration of uranium resources exist in areas outside the WSA.

Conclusion. The impacts on exploration of uranium resources are not considered significant because large areas in the State of similar or better potential would remain open to exploration and development.

3. Impacts on Livestock Grazing Use Levels

Current livestock grazing use levels of approximately 8 head (cattle) per section per year (6,605 AUMs) would continue. Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. Grazing is a permissible and compatible activity in wilderness; however, necessary motorized vehicle access to maintain 8 dirt tanks, 1 windmill, 2 storage tanks, and 3 miles of pipeline and drinking troughs would be by permit only. Minor repairs of fences would have to be accomplished on horseback.

Over the long-term, it is anticipated that few additional rangeland developments would be needed to improve grazing management in the WSA. For this reason, wilderness designation would not have significant impacts on livestock grazing in the WSA. It should also be noted that in many cases, wilderness designation would limit, but not preclude, rangeland management actions and that impacts would result from limitations on design and placement rather than the prohibition of new rangeland developments.

Restrictions on vehicle use inside the designated area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent recreational and other uses.

If the region experiences a population increase as a result of coal development north of the WSA, the benefits to livestock operations from closing the area to unauthorized vehicle use could be substantial.

Conclusion. Because of restricted vehicle access, an inconvenience to the livestock operator would result. Impacts on livestock grazing use levels would not occur.

B. Amended Boundary

Under this alternative, 17,290 acres of public land (including 2,880 acres of State-owned subsurface minerals) within the Eagle Peak WSA would be recommended as suitable and 26,670 acres of public land (8,012 acres of State-owned subsurface minerals) would be recommended unsuitable for wilderness designation.

If designated wilderness, the existing uses and activities in the area and potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981). Areas not designated wilderness would not be subject to these constraints.

1. Impacts on Wilderness Values

Wilderness designation of 17,290 acres within the WSA would exclude prospecting and mineral development on 14,410 acres where subsurface rights are in public ownership except on valid mining claims and leases. It would also prohibit the filing of new claims and issuing of mineral leases and restrict most motorized vehicle and equipment operation. Approximately 8 miles of vehicle ways would revegetate due to motor vehicle

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closure. Furthermore the building of 5-10 miles of new roads would also be prohibited.

Prohibiting mineral exploration and new road development within the suitable area would protect 39 percent of Eagle Peak's existing natural character and opportunities for solitude and primitive recreation. The 2,880 acres of subsurface mineral rights and potential mineral resources in the suitable area reduce the ability of BLM to control surface uses to protect the entire area's wilderness characteristics.

Exploration and possible development of the State-owned mineral rights within the central, southwest, and east edges of the suitable area and necessary motorized access could not be prohibited under wilderness management. The exercise of these rights would result in 5 to 10 drill holes causing up to 5 acres of surface disturbance and up to 3 miles of new access roads. A low level of development would cause an additional 20 to 30 acres of surface disturbance. Naturalness and opportunities for solitude would be reduced by 10 to 15 percent in the suitable area.

On the 26,670 acres recommended nonsuitable for wilderness, mineral exploration and mineral material sales are projected to occur over the long-term. Mineral exploration would most likely be limited to exploration. Of the 8,000 acres of moderate potential for uranium, 600 acres are located in the nonsuitable area and 7,400 acres are in the suitable area. Up to 30 exploratory holes would be drilled resulting in 15 to 20 acres of surface disturbance. However, unless economic conditions change or new data change the favorability classification, development of the resource is not expected. About one mineral material sale per year is projected for sand and cinders in the nonsuitable area. Mineral exploration would result in the disruption of the habitat of large raptors, pronghorn, deer, mountain lions, and other wildlife species. Naturalness and opportunities for solitude would be reduced by 20 to 30 percent in the nonsuitable area.

Over time, continued unrestricted vehicular access within the nonsuitable area could be expected to impact natural values. These impacts would occur as new routes were created to new rangeland improvements, mineral exploration or as a result of motorized recreational vehicle use; less than 200 vehicles per year is projected.

Conclusion. Under the Amended Boundary Alternative, the long-term protection of Congressional designation would provide some benefit to maintaining the natural character of the basalt mesas and pinyon-juniper covered rolling hills and outstanding opportunities for solitude on 17,290 acres within the suitable portion of the WSA. Naturalness and opportunities for solitude on 26,670 acres would be degraded over the long-term due to surface disturbing activities such as mineral exploration and development, motorized recreation use, and new access to range developments.

Access to both mineral and private inholdings within the central, southwest, and east portions of the suitable area would result in a 10-15 percent degradation of naturalness and opportunities for solitude.

2. Impacts on Exploration of Uranium Resources

Under this alternative, 7,400 acres of moderate potential for uranium exists within the suitable area and 600 acres of moderate potential in the nonsuitable area. Although approximately 8,000 acres of Federal mineral estate in the Eagle Peak WSA have moderate potential for uranium, there are no existing mining claims in the area. After wilderness designation, the location of new mining claims would not be allowed on the 17,290 acres recommended suitable, but would be allowed on the 26,670 acres recommended nonsuitable.

Conclusion. Under the Amended Boundary Alternative, exploration and development of uranium potential on 7,400 acres would be foregone. This loss would not be detrimental to the industry because large areas in the State of similar or better potential would remain open to exploration and development.

3. Impacts on Livestock Grazing Use Levels

Current livestock grazing use levels of approximately 8 head (cattle) per section per year (2,593 AUMs) would continue. Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. Grazing is a permissible and compatible activity in wilderness; however, within the suitable area, motorized vehicle access to maintain 3 miles of pipeline, 2 storage tanks, and drinking troughs would be allowed if there were no practical alternative. Minor repairs or fences would have to be accomplished on horseback.

Conclusion. There would be no impacts to livestock grazing use levels under this alternative. Grazing levels are projected to remain about the same and there would be no impact to livestock grazing operations in the WSA.

C. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the entire 43,960 acres of public land within the Eagle Peak WSA would be recommended nonsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III. The most probable uses of the area would be continued livestock grazing and fuelwood sales. Coal and uranium exploration and development could occur in the region.

In the 43,960 acres not designated as wilderness, unavoidable adverse effects of the proposed action will result from future surface disturbance activities. Over the long-term, these activities will reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation and special wilderness features. Also, cumulative short-term consumptive uses of this land will lead to long-term degradation of wilderness values. Nondesignation of 43,960 acres as wilderness would leave this acreage available for

development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

The most probable uses of the area, if it is not designated as wilderness, would be continued livestock grazing, fuelwood sales, and mineral exploration. Levels of human impacts in the area are expected to increase in the future as a result of escalating demands for firewood and population increases resulting from coal development to the north of the WSA. Projected long-term development would increase access as 18 miles of new roads would occur in the central and southwestern portions of the WSA.

If coal development occurs, it will probably increase traffic along State Highway 32 and County Road A007. This possible increase in traffic could increase public awareness of the area and produce an increase in various types of vehicle-dependent recreation and other uses.

Mineral exploration and mineral material sales are projected to occur over the long-term. Mineral exploration would most likely be limited to exploration for uranium on 8,000 acres of Federal mineral estate classified as having moderate favorability for occurrence. Up to 60 exploratory holes would be drilled. However, unless economic conditions change or new data change the favorability classification, development of the resource is not expected. Up to 2 mineral material sales are projected each year for sand and gravel and cinders. Mineral exploration would result in the disruption of the habitat of large raptors, antelope, deer, mountain lions and other wildlife species. Impacts to scenic quality, watershed and archaeological sites and a reduction of the opportunities for solitude could also be expected to occur. Degradation of naturalness is also expected to occur from access and exploration on 10,892 acres of State-managed mineral inholdings.

Over time, continued unrestricted vehicular access into the area could be expected to impact natural values. These impacts would occur as new routes were created to new rangeland improvements, firewood cutting areas in support of mineral exploration or as a result of motorized recreational use; less than 200 vehicles per year is projected.

Management actions, calling for varying degrees of vegetative manipulation, water developments and rangeland improvements, have been identified by the wildlife, range, forestry and watershed programs. The individual projects, designed to improve both livestock and wildlife habitat and reduce erosion, would not significantly impact wilderness values. The cumulative effect of these projects, however, would impact wilderness characteristics.

Surface disturbing activities would degrade the solitude and primitive recreation opportunities over the long-term.

Conclusion. In the long-term, the existing wilderness values of the Eagle Peak WSA would be degraded due to impacts associated with mineral exploration, woodcutting, motorized recreation, and the associated projected 18 miles of new access roads.

2. Impacts on Exploration of Uranium Resources

There would be no impacts to uranium resources under this alternative. Mining activities would be regulated to prevent unnecessary and undue degradation under the Surface Management Regulations (43 Code of Federal Regulations 3809). Full potential for uranium could be determined through exploration.

Conclusion. No impacts on exploration of uranium resources would occur.

3. Impacts on Livestock Grazing Use Levels

This alternative would have no immediate impact on livestock operators in the WSA. There could be indirect impacts, if coal development occurs in the region. This could increase the population of the area and continued unrestricted vehicular access, under this alternative, could result in increased "people problems" for the livestock operator. There would be no impacts on rangeland program recommendations, which call for rangeland management actions to improve rangeland conditions and forage production. It is projected that up to two projects per year would be implemented within the area.

Conclusion. There would be no impacts to livestock grazing use levels under this alternative. Grazing use levels are projected to remain about the same and there would be no impacts to livestock grazing operations in the WSA.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report was prepared after considering public comment obtained from a variety of sources, including mass mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the BLM New Mexico Statewide Wilderness Environmental Impact Statement.

Support for wilderness designation has come from recreation, conservation, and preservation interests. Reasons cited included: the type of landforms and the expanse of grassland in the WSA would add diversity to the wilderness preservation system; the need to preserve significant raptor habitat and good pronghorn habitat; and high cultural resource values and scenic values. It was also noted that existing livestock operations would continue under wilderness management.

Opposition to wilderness designation of the Eagle Peak WSA has centered around conflicts with mineral and livestock interests. A large number of Catron County residents are opposed to additional wilderness areas in the County. Reasons for opposition included: the lack of naturalness due to rangeland developments; the lack of wilderness values; conflicts with possible future mineral development; possible adverse impacts on livestock operations; and the impacts of wilderness designation on future economic development of Catron County.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 19 letters and 52 coupons were received.

Fourteen letters and the coupons indicated disagreement with the Area Manager's unsuitable recommendation. Among the reasons cited in support of designation were the benefits of wilderness to wildlife and the additional protection which wilderness designation would provide to cultural resources inside the WSA and to Zuni Salt Lake, which is near the northern boundary of the WSA. There was also disagreement with the assessment of the manageability problems resulting from the extensive mineral inholdings in the WSA.

Five letters concurred with the unsuitable recommendation. These respondents cited the man-made features in the WSA and noted that the natural setting of the WSA has been and will continue to be significantly disturbed by ranching and probable mineral development activities. The mineral potential of the WSA was also a prominent reason for opposition to designation. One respondent, the holder of a State coal lease adjacent to the northeast boundary of the WSA, commented that drilling indicates that the leased property as well as the WSA has the potential for future coal development.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Eagle Peak WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the Eagle Peak WSA by 104 commentators, all of which supported wilderness designation.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Eagle Peak WSA by 30 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The BLM evaluated possible boundary amendments but determined that 'no logical boundary could remove areas of marginal naturalness and areas of subsurface minerals inholdings without severely impacting wilderness values and manageability.' This assessment led the BLM to recommend the no-wilderness alternative for Eagle Peak WSA.

The Coalition disagrees that an amended boundary is not possible and proposes a Cerro Pomo Wilderness which easily meets the wilderness criteria and represents a high-quality addition to the National Wilderness Preservation system."

Response: The BLM evaluated an Amended Boundary Alternative based on the Coalition's proposal. Analysis of this alternative is contained in the Eagle Peak WAR in this Final EIS.

* * * * *

No. 0180

Name(s): Joseph V. Chraieth

Comment: "As large as this WSA is, why wasn't it broken into two or three smaller areas and each considered separately? This WSA is too diverse in landforms and too odd in shape to consider as one block."

No. 0180 (concluded)

Response: The BLM evaluated an Amended Boundary Alternative for 17,290 acres based on the New Mexico BLM Wilderness Coalition's proposal. Analysis of this alternative is contained in the Eagle Peak WAR of this Final EIS.

APPENDIX 20

HORSE MOUNTAIN WSA (NM-020-043)

I. GENERAL DESCRIPTION

A. Location

The Horse Mountain Wilderness Study Area (WSA) is located in Catron County in west-central New Mexico. The WSA is approximately 25 air miles southwest of Datil.

The U.S. Geologic Survey (USGS) topographic maps covering the WSA are the Wallace Mesa, Los Canyon, Horse Mountain West, and Horse Mountain East quadrangles. All of these are New Mexico quadrangles at the 7½-minute scale.

B. Climate and Topography

Horse Mountain is characterized by a generally mild, semiarid climate. Precipitation is normally received during the warmer 6 months of the year. Half of the annual average precipitation falls from July through September as a result of brief, but often heavy thundershowers. Winter is usually the driest season. Annual precipitation averages about 14 inches over the entire WSA, with the lower elevations averaging 12 to 13 inches and higher elevations 16 inches. Average annual snowfall in the area is 2 to 3 feet in most localities.

Temperatures in the summer average in the 80's during the days and in the 40's at night. Winter temperatures normally range from the 40's during daylight hours to the low teens during the night. Subzero nighttime temperatures are not uncommon in the higher elevations. Mean annual maximum and minimum temperatures for the area are 63°F and 26°F, respectively. The growing season lasts nearly 90 days in those elevations above 7,000 feet.

The prevailing winds over the WSA are from the southwest. Spring and summer winds of high intensity are common.

Horse Mountain is an isolated 9,490-foot mountain peak which rises 2,500 feet above the Plains of San Agustin. It is characterized by steep slopes on all aspects of the mountain with major drainages running to the northwest, north, and northeast.

C. Land Status

The WSA contains 5,032 acres of public land. There are no State or private inholdings within the WSA boundary. (See Map 20-1 for land status within the WSA boundary.)

HORSE MOUNTAIN WSA (NM-020-043)

Proposed Action-Amended Boundary Alternative

Legend

— WSA BOUNDARY
 --- AMENDED BOUNDARY

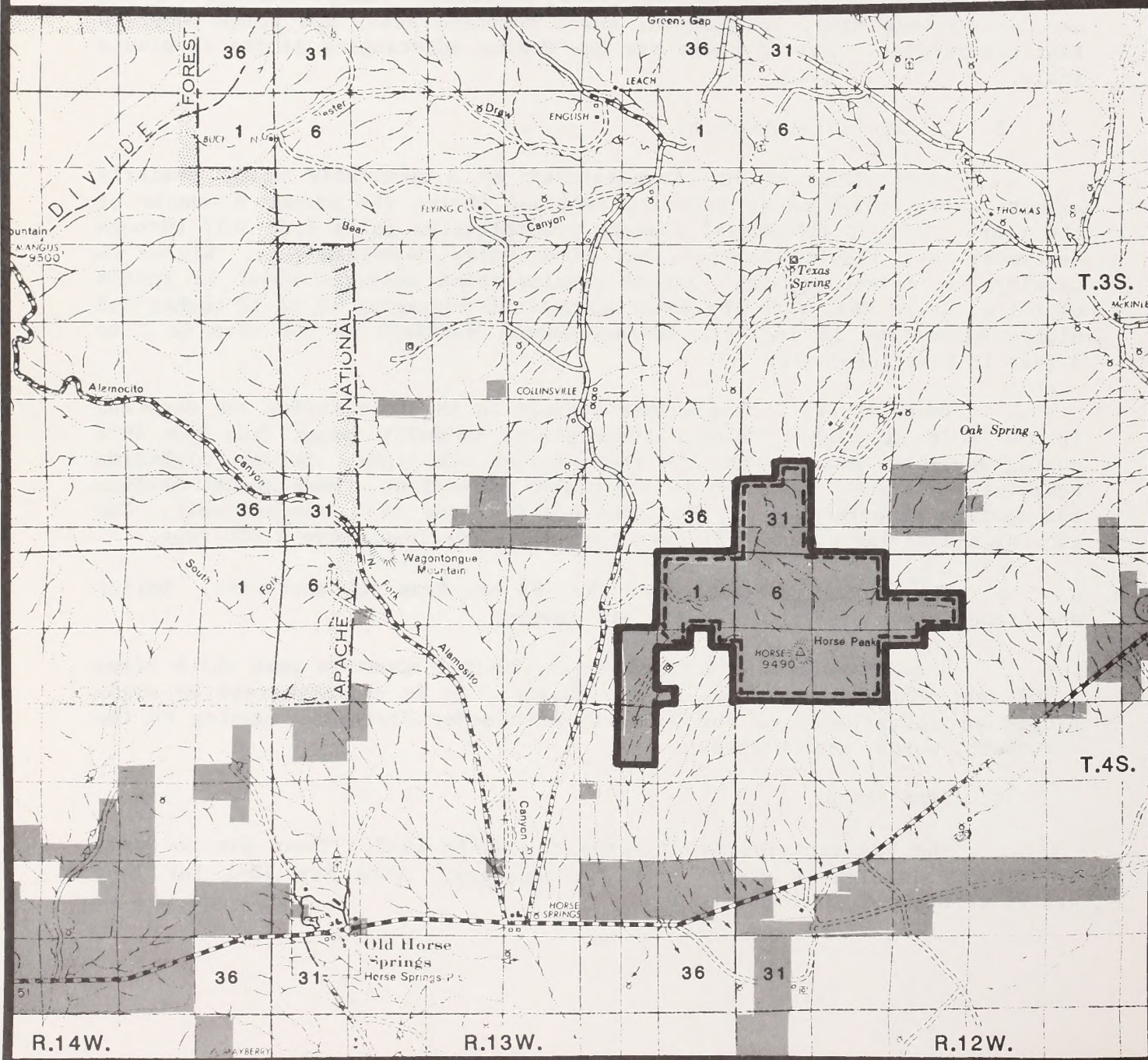
Land Status

■ BLM
 □ PRIVATE
 □ STATE

Scale: 1/2 inch = 1 mile

MAP 20-1 LAND STATUS

Source: USDI, BLM, Las Cruces District, April, 1986.



D. Access

Physical access to the Horse Mountain WSA is provided by unimproved two-track ways which originate along two County roads (B040 and B034) to the west and north of the WSA. State Highway 12 from Datil to Reserve is the major paved route in the area.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The Amended Boundary Alternative is the proposed action for the Horse Mountain WSA. This alternative recommends 4,432 acres as suitable and includes the core of the WSA which has high wilderness values and few resource conflicts. The boundary adjustment would also result in more readily identifiable boundaries and would improve the overall natural qualities of the area by removing 600 acres with marginal natural qualities, and little or no opportunities for primitive recreation.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.



Horse Mountain from State Highway 12.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
Expanding the WSA	This was not considered further because the majority of the land is not in Federal ownership. However, to improve manageability, some adjacent State lands have been identified for acquisition.

Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
Impacts on Threatened and Endangered Species.	Although Horse Mountain WSA provides potential habitat for both Federal and State-listed species, none are known to occur in the area. An analysis of potential impacts to threatened or endangered species would be required for any proposed surface disturbing activities.
Impacts on Oil, Gas, and Uranium Exploration and Development	Exploration and development of oil, gas, and uranium are not expected. While the WSA contains moderate potential for oil and gas resources, there are no leases in the WSA. The oil and gas potential was raised from low to moderate due to recent information obtained and exploration west of Horse Mountain.
Impacts on Development of Commercial Timber	While there are an estimated 3.7 million board feet of timber within the WSA, other areas outside the WSA are better suited for logging. There has been no interest in the Horse Mountain timber since the early 1960s.
Impacts on Cultural Sites	Cultural resources were not selected for detailed analysis because there are no known sites and the potential for their occurrence is also low.

Alternatives Selected for Detailed Analysis	Reasons
All Wilderness	5,032 acres were identified during the inventory as having wilderness values.
Amended Boundary (Proposed Action)	This boundary configuration was identified to eliminate an area with marginal wilderness values and to eliminate a conflict with access to a ranch headquarters.
No Wilderness	The No Action Alternative required by NEPA.

Environmental Issues Selected for Detailed Analysis

The primary issues for the Horse Mountain WSA are impacts on the quality of the area's wilderness values and impacts on nonenergy locatable minerals. Although no significant impacts to nonenergy locatable minerals were identified, these resources are analyzed because the Horse Mountain WSA has moderate potential for copper, lead, zinc, tungsten, silver, and gold and mineral potential is an issue of Statewide concern. The impacts on livestock grazing use levels were also identified as an issue and analyzed because of Statewide concern.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
<p>°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 5,032 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Close 7 miles of vehicle ways which currently receive low use (less than 25 vehicles per year).</p> <p>-Access across public land to the West Horse Mountain ranch headquarters would be limited.</p> <p>-Require permits for vehicular access to maintain 1/2 mile of pipeline and 3 dirt tanks. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be prohibited.</p> <p>-Current livestock grazing levels of approximately 6 head per section per year would continue.</p> <p>-1 mile of pipeline, 2 troughs, and 1 1/2 miles of fence proposed for the West Horse Mountain allotment would not be permitted.</p> <p>-5,032 acres would be closed to energy minerals leasing. Recent oil and gas exploration in the area indicates moderate potential; exploration needed to fully assess the potential (i.e., drilling) would be foregone.</p>	<p>°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 4,432 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Close 6 1/4 miles of vehicle ways which currently receive low use (less than 20 vehicles per year).</p> <p>-Require permits for vehicular access to maintain 1/2 mile of pipeline and 3 dirt tanks. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be prohibited.</p> <p>-Current livestock grazing levels of approximately 6 head per section per year would continue.</p> <p>-1 mile of pipeline, 2 troughs, and 1 1/2 miles of fence proposed for the West Horse Mountain allotment would not be permitted.</p> <p>-4,432 acres would be closed to future energy minerals leasing, exploration, and development. Recent oil and gas exploration in the area indicates moderate potential. Exploration needed to fully assess the potential would be precluded.</p>	<p>°MANAGE 5,032 ACRES WITHOUT WILDERNESS PROTECTION. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Vehicle use would be allowed to continue on 7 miles of vehicle ways. Because of rangeland and wildlife developments over the long-term, an additional 5 miles of new vehicle ways are projected for the WSA. Total vehicle use is estimated at less than 50 vehicles per year.</p> <p>-Access across public land to the west Horse Mountain Ranch headquarters would not be restricted.</p> <p>-Vehicular restrictions for maintenance of rangeland developments would not apply.</p> <p>-Current livestock grazing levels of approximately 6 head (cattle) per section per year would continue with additional rangeland development projects constructed in the long-term.</p> <p>-1 mile of pipeline, 2 troughs, and 1 1/2 miles of fence proposed for the West Horse Mountain allotment would be permitted.</p> <p>-5,032 acres would remain open to energy minerals leasing and oil and gas exploration. An additional 2 miles of new access routes are projected over the long-term.</p> <p>-While the WSA contains an estimated 3.7 million board feet of timber, only about 10 percent (350,000 board feet) of the timber could be harvested over the long-term. However, numerous other areas outside the WSA are better suited for logging and little interest in timber development has occurred in the past 25 years.</p>

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES
(concluded)

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
-5,032 acres would remain closed to mining claim location.	-4,432 acres would remain closed to mining claim location.	-5,032 acres are segregated from mineral entry and would remain closed to mining claim location.
-Attempts would be made to acquire 2,240 acres of State land and 640 acres of private land adjacent to the WSA.	-Attempts would be made to acquire 2,240 acres of State land and 640 acres of private land adjacent to the WSA.	-Acquisitions (i.e., exchanges) would be pursued for State and private lands.
-The following projects would be allowed if they enhance wilderness values. Maintenance and construction would be done without motor vehicles. Maintain 2 wildlife waters. Fence 1 reservoir. Aerial seed 200 acres. 140-acre planting (trees). 40-acre prescribed burn. Construction and fencing of 2 reservoirs would be denied.	-The following projects would be allowed if they enhance wilderness values. Maintenance and construction would be done without motor vehicles. Maintain 2 wildlife waters. Fence 1 reservoir. Aerial seed 200 acres. 140-acre planting (trees). Construction and fencing 2 reservoirs would be denied.	-The following projects would be allowed. Motor vehicles would be used for construction and maintenance. Maintain 2 wildlife waters. Fence 1 reservoir. Aerial seed 200 acres. 140-acre planting (trees). Construct and fence 2 reservoirs. Prescribed burn 40 acres.
	°MANAGE 600 ACRES WITHOUT WILDERNESS PROTECTION. THE FOLLOWING ACTIONS WOULD BE TAKEN:	
	-600 acres would remain open to energy minerals leasing. Exploration would result in construction of 1 mile of road and a single drill pad. Surface disturbances would equal 3 to 5 acres.	
	-600 acres with moderate potential for copper, lead, zinc, tungsten, silver, and gold would remain closed to mining claim location.	
	-3/4 mile of vehicle trails would remain open and an additional mile of new access is projected. Use would be less than 10 vehicles per year.	
	-Access across public land would be unrestricted to the West Horse Mountain ranch headquarters.	
	-Projects proposed in the Horse Mountain HMP could be implemented. There would be no restrictions on access.	

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives /Acreage	Major Environmental Issues
	Impacts on Wilderness Values
All Wilderness (5,032 acres)	The WSA's forested mountains and numerous small meadows, opportunities for solitude, hiking, camping and mule deer hunting, would be maintained. Preservation of raptor, mule deer, elk, mountain lion, and black bear habitat would result from wilderness designation. In addition, potential habitat for 4 rare plant species would be protected.
Amended Boundary (Proposed Action) (4,432 acres recommended suitable, 600 acres recommended unsuitable)	Same as All Wilderness Alternative. Naturalness would be affected on 600 acres released from wilderness due to oil and gas exploration. Up to 5 acres would be disturbed. Potential problems of access to the West Horse Mountain Ranch would be eliminated.
No Wilderness (5,032 acres)	Naturalness and outstanding opportunities for solitude would be maintained in the short-term. However, these values would be diminished in the long-term as a result of rangeland management actions, woodcutting, and continued vehicular access for hunting and other forms of recreation.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Horse Mountain WSA is located within the Datil-Mogollon Volcanic Plateau. This area is transitional between the Basin and Range physiographic province and the Colorado Plateau. The major geologic feature of the WSA is Horse Mountain, a composite strato-volcano of basaltic-andesitic composition. Horse Mountain is one of a series of Tertiary volcanic features which surround the southwestern portion of the Plains of San Agustin.

Rocks exposed within the WSA are volcanic and sedimentary in nature. Andesitic to basaltic flows of late Tertiary age have intruded and capped older rhyolitic tuffs and volcanoclastics of the mid-Tertiary Datil formation. Some Quaternary basin fill forms the surface of the southwestern "dog leg" of the WSA.

A small uplift of Triassic and Permian rocks occurs outside the WSA, 2 miles south of Horse Peak. These rocks suggest that Triassic and Permian sandstones and limestones extend beneath the volcanic pile forming Horse Mountain. Data from a deep well drilled near the center of the Plains of San Agustin indicate that the Mesozoic and Paleozoic rocks unconformably overlies Precambrian gneiss at depth.

B. Water

The WSA is located within the Plains of San Agustin, a closed basin, with interior surface water drainage.

No permanent streams or surface water bodies exist within the WSA boundary. The many alluvial arroyos and canyons which drain Horse Mountain contain runoff during the more intense storms but runoff soon disappears into alluvial fans and fill of surrounding lowlands.

Wells in the Horse Mountain area range in depth to water from 18 to 200 feet, but most are less than 100 feet to water. The general direction of ground water movement is southeast and southwest, but volcanic and structural features present make local interpretations of movement difficult. Most runoff is down mountain canyons until it reaches the fracture zones in igneous rocks of the Datil formation and the overlying Quaternary age alluvial deposits which are the principal aquifers in the WSA. Analysis results from a number of wells in the Horse Mountain area indicate water of suitable chemical quality for livestock purposes. Instantaneous flow rates for these wells range from 1 to 6 gallons per minute.

C. Soils

Soils in the WSA have textures that range from cobbly loams to clays and are shallow over basalt or tuff. Approximately 30 percent of the soil mapping unit is rock outcrop. The rock outcrop unit occurs on steep

woodland side slopes and ridges. It has potential erosion problems associated with slopes of 25 to 60 percent. This erosion potential is reduced somewhat by cobbles and stones on the surface.

D. Vegetation

1. General

The following Standard Habitat Sites (SHS's) are present within the Horse Mountain WSA:

Ponderosa-Pinyon Mountain (3,982 acres)

This SHS has mature ponderosa in the higher elevations with a mixture of pinyon on the drier slopes. The ponderosa stands are fairly extensive throughout the WSA, occurring generally in open semi-pure compositions. Some Douglas fir is mixed with the ponderosa, especially on the wetter north-facing slopes. The understory consists of mountain mahogany, oak, and rabbitbrush. Animals that are commonly found in this SHS include mule deer, burros, gray foxes, golden eagles, turkey vultures, red-tailed hawks, and great horned owls. Other animals that are occasionally found include elk, black bears, mountain lions, bobcats, and bald eagles.

Blue Grama-Snakeweed Hill (1,050 acres)

Found primarily on lower hills next to mountains, the primary plant species within this SHS are broom snakeweed and blue grama, although fringed sage, winterfat, and squirreltail are also present. Common animal species in the SHS include coyotes, kit foxes, pronghorn, striped skunks, jackrabbits, prairie dogs, and desert cottontails.

2. Rare Plant Species

The following species were identified as potentially located in or near the WSA (New Mexico State Natural Resources Department 1985).

Species: Erigeron hessii - Hess's fleabane

Status: State-listed endangered

Species: Erigeron rhizomatus - Zuni fleabane

Status: State-listed endangered

Species: Allium gooddingii - Gooddings onion

Status: State-listed endangered

E. Wildlife

1. General

The Horse Mountain WSA supports approximately 299 wildlife species, including 53 reptile and amphibian species, 71 mammal species, and

HORSE MOUNTAIN

175 resident and migratory bird species. A description of characteristic wildlife species present in the WSA is included in the SHS discussion in the Vegetation section.

2. Threatened or Endangered Fauna Species

The Horse Mountain WSA has been identified by the U.S. Fish and Wildlife Service as providing potential habitat for bald eagles and peregrine falcons, both Federally-endangered species.

F. Visual

Horse Mountain is characterized by abrupt elevation differences, dense and varied conifer forest vegetation, and a wide variety of shapes, colors, and textures, which are often spectacular in seasonal combination.

These scenic qualities, and Horse Mountain's proximity to State Highway 12 have resulted in a Visual Resource Management (VRM) Class II rating for the WSA.

In addition to the scenic qualities within the WSA, numerous vantage points up to 2,500 feet above the surrounding landscape offer sweeping vistas. Features over a hundred miles away can be seen on a clear day.

G. Cultural

There are no documented archaeological sites within the Horse Mountain WSA. Based on limited field surveys, the potential for the existence of sites is considered to be low.

H. Air

Generally, the quality of air within the Horse Mountain WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May), when southwest-prevailing winds result in dust storms.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resource potential of the land within the Horse Mountain WSA is shown on Map 20-2.

1. Energy Minerals

As of April 15, 1986, there were no mineral leases in the WSA.

a. Oil and Gas

No oil and gas exploration wells have been drilled within the WSA. The closest exploration well to the WSA is a 12,284-foot dry wildcat well, approximately 18 miles east of Horse Peak. This well, and outcrops at the southern base of Horse Mountain, suggest that a sequence of possible petroleum source and reservoir rocks, Cretaceous, Permian, and Mississippian in age, lie at depth below the volcanics comprising Horse Mountain. Within the region, a few oil and gas wells have tested this sequence with negative results. However, recent (1984-1986) and ongoing geophysical exploration has indicated more favorable conditions for hydrocarbon deposition than had previously been recognized, warranting changing the oil and gas potential from low to moderate. Additional information was obtained concerning oil and gas potential, however, it was deemed confidential and proprietary and therefore, cannot be included in this document.

b. Uranium

The Tertiary volcanic sediments along the periphery of Horse Mountain are a potential environment for uranium and thorium deposits. Despite this potential, regional information suggests there is low potential for these resources.

2. Nonenergy Minerals (Base and Precious Metals)

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA. The WSA has been segregated from the general mining laws since 1970.

Although no direct evidence of base or precious metal mineralization has been identified within or near the Horse Mountain WSA, the geologic environment is moderately favorable for its existence. The rhyolite flow outcropping around the periphery of Horse Mountain is a portion of the Datil formation which hosts tin mineralization 35 miles south of the WSA. Outcrops of uplifted Permian limestones at the southern foot of Horse Mountain indicate that rhyolite may have interacted with limestone. Limestone/rhyolite interactions are classic geologic environments associated with base and precious metal deposition. Thus, the geologic environment is favorable for base and precious metal mineralization and the potential is considered moderate.

There has been very little recorded exploration for locatable minerals in the vicinity of the WSA.

HORSE MOUNTAIN WSA (NM-020-043)

Proposed Action-Amended Boundary Alternative

Legend

- WSA BOUNDARY
- - - AMENDED BOUNDARY

Land Status

- BLM
- P PRIVATE
- S STATE

Scale: 1/2 inch=1 mile

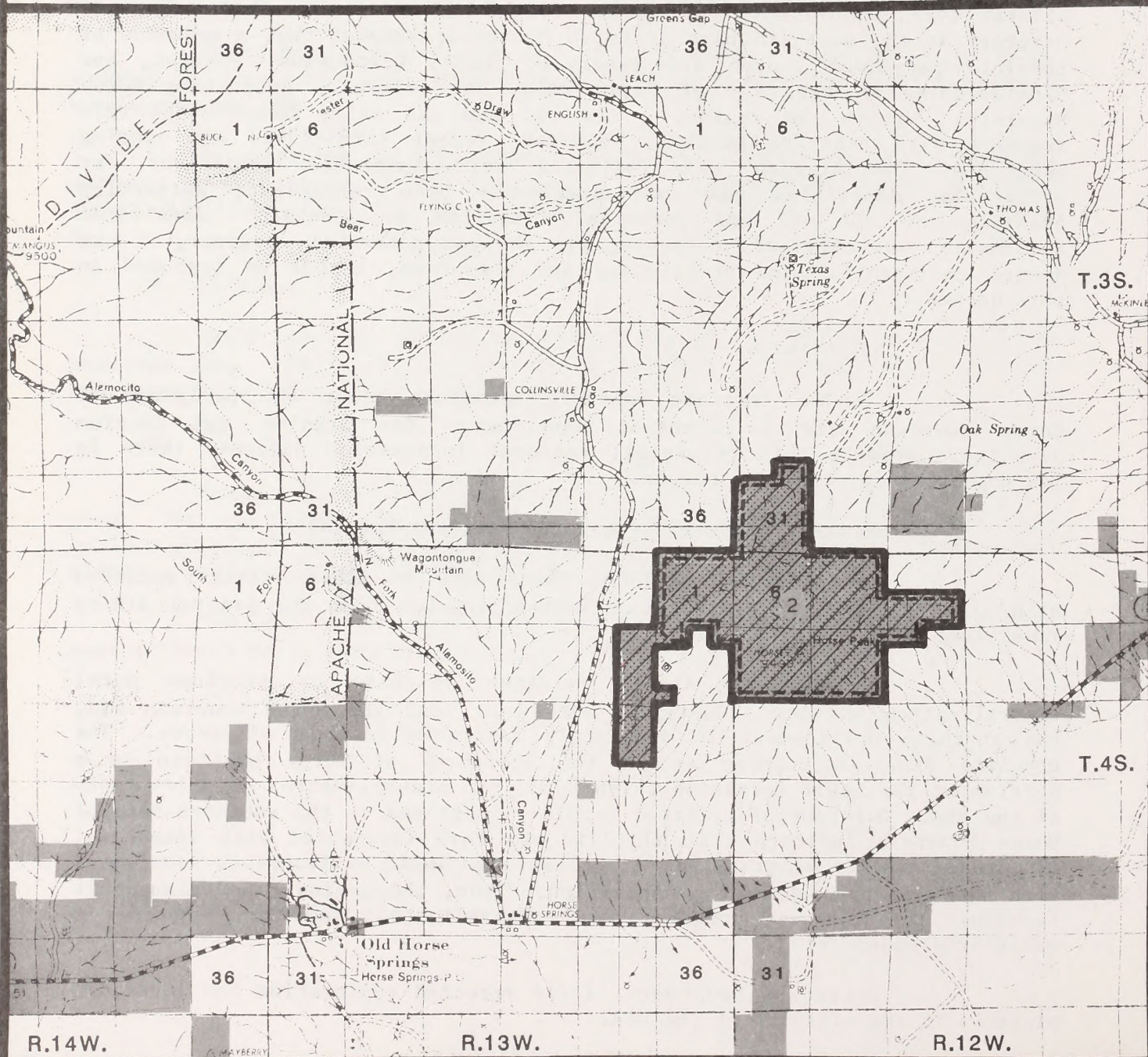
MAP 20-2

MINERAL RESOURCE POTENTIAL*

- Base and Precious Metals
- Oil and Gas

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Source: USDI, BLM, Las Cruces District, April, 1986.



If economic conditions encourage the development of more domestic sources of base metals, areas such as Horse Mountain could become targets for deep exploration. Even if geochemical anomalies are not surficially present, the shallow limestones at the base of Horse Mountain would be likely targets for the search of mineralized rhyolite/limestone interactions. Mineral potential is displayed in Table 3.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE HORSE MOUNTAIN WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*	Approximate Acreage in Amended Boundary*
Energy Minerals				
Oil and Gas	Mesozoic and Paleozoic continental and marine sedimentary rocks	Moderate	5,000	4,400
Uranium	Tertiary volcanic sediments	Low	--	--
Nonenergy Minerals				
Base and Precious Metals (Copper ^a /, Lead ^a /, Zinc ^a /, Tungsten ^a /, Silver ^a /, Gold)	Early Tertiary igneous intrusions into Paleozoic sedimentary and Precambrian basement rocks	Moderate	5,000	4,400

Notes: *Acreage was not calculated for areas with low potential.

^a/Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

B. Watershed

Horse Mountain is within the Horse Springs watershed. No areas in the WSA have been classified as having critical erosion problems. There have been no projects for land treatments or erosion control in the WSA. Runoff in the WSA averages 0.5 to 1 inch per year with erosion amounts of 0.2 to 0.5 acre-feet per square mile per year. Currently, erosion problems are occurring on existing access routes within the WSA.

C. Livestock Grazing

1. Allotments

Parts of three grazing allotments are within the Horse Mountain WSA. The West, East, and North Horse Mountain allotments utilize a year-round cow-calf operation.

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Much of the WSA is rarely grazed by livestock due primarily to the lack of permanent water and inaccessibility of the area to livestock. The lower elevations of the WSA on the West Horse Mountain allotment are grazed year-round by livestock. Any livestock grazing that takes place in the higher elevations of the WSA usually occurs during the frost-free period or when snow is not present. Tables 4 and 5 show existing livestock grazing information.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
West Horse Mountain 0110	3,959	672	2,959	504	75%
East Horse Mountain 0111	2,548	240	1,993	187	78%
North Horse Mountain 0125	720	72	80	8	11%
TOTAL			5,032	699	

2. Ranch Management

The day-to-day ranch operations in the WSA consist of checking on livestock condition, forage conditions, livestock water availability, placement of salt and protein supplements, and performing normal maintenance on boundary fences.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name	Type of Development
West Horse Mountain	3 miles boundary fence 3 dirt tanks
East Horse Mountain	½ mile pipeline 1 windmill (no longer functional) 1½ miles boundary fence
North Horse Mountain	¼ mile boundary fence

Note: ^{a/}Information shown in tables reflects only
Federal acres and animal unit months (AUMs),
and rangeland developments on public land.

3. Potential Rangeland Developments

A spring has been proposed for development on the East Horse Mountain allotment. This development would replace the windmill which is no longer functional.

One mile of pipeline with two drinking troughs and 1½ miles of fence have been proposed in the Allotment Management Plan for the West Horse Mountain allotment. This development is designed to improve distribution of cattle by adding two pastures which will reduce grazing pressure in pastures in poor condition outside the WSA.

D. Timber Harvest

There is currently no authorized use of the woodland resources on Horse Mountain.

There are roughly 2,462 acres of ponderosa pine stands in the WSA. Assuming an average of 1,518 board feet per acre, there is a total of 3.7 million board feet of standing timber in the area. Stocking of ponderosa pine in the Horse Mountain WSA is the highest in the Las Cruces District, but still is low for the potential of the site.

The pinyon-juniper stands are of low volume per acre making them marginally useful as sources of firewood, posts, Christmas trees, and other woodland products.

Past use of the area has consisted of two timber sales and a small amount of fuelwood harvesting (5 permits for 30 cords of dead and down pinyon-juniper). The timber sales, which ended in 1960, covered 275 acres and removed approximately 200,000 board feet of timber.

Future commercial use of the forested lands on Horse Mountain would require intensive timber management including selective cutting to take out the mature decadent trees. Sanitation harvesting and other silvicultural prescriptions, primarily controlled and natural fires, would be important applications to the ponderosa stands to promote regeneration opportunities if the commercial potential of the stands is to be maintained or improved, and utilized.

The present stand conditions represent a declining trend in the succession of a ponderosa pine forest. Management actions, such as planting trees, reducing grazing pressure, prescribed burning, and improving stand vigor will be necessary to maintain the ponderosa pine forest in the long-term. Such actions could be undertaken within certain constraints if the area is designated as wilderness.

E. Recreation

Horse Mountain is an isolated mountain peak and the view from the summit offers a spectacular 360 degrees panorama. There are also isolated outcrops of volcanic rock which provide localized areas of geologic interest. Opportunities for recreation consist of deer hunting, various kinds of sightseeing, photography, hiking, camping, and off-road vehicle use.

The WSA has been withdrawn from appropriation under the general mining laws since 1970. This classification was designed to protect high recreational values in the WSA.

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Current hunting use is limited primarily to big game based on the moderate deer population. Bear and mountain lion are also present in the WSA and are occasionally hunted. Other recreational uses in the area are presently limited by the low levels of public knowledge of the area, the distance from population centers, and the lack of legal access.

F. Education/Research

The WSA is not currently being used for any research or education projects. The isolated mountain does create an "island ecosystem" with diverse wildlife habitat and population characteristics, which could be the subject of research.

These same characteristics also result in opportunities for environmental education. However, the distance from population centers reduces the potential for actual use of the area for environmental education.

G. Native American

There are no known current or potential Native American religious sites within the WSA.

H. Realty Actions

No applications for rights-of-way or easements have been issued nor are any pending in the WSA.

The lands within the WSA have been segregated since 1970 from appropriation under the general mining laws (NM 9688 Group II, published in Vol. 35, No. 154, of the Federal Register on August 8, 1970). This classification precludes the filing of mining claims, but does not affect mineral leasing.

I. Wildlife

A wildlife habitat management plan (HMP) has been developed for Horse Mountain in cooperation with the New Mexico Department of Game and Fish (NMDGF). It is designed to improve and protect habitat for bald eagles, mule deer, pronghorn, elk, Merriam's turkey, tassel-eared squirrels, harlequin quail, and cavity nesting birds. The objectives of the plan are to create more roosts, water sources, and prey species for bald eagles and to produce more forage for elk, mule deer, and pronghorn. Actions proposed within the WSA include maintenance of 2 wildlife waters (umbrellas), fencing 1 reservoir, construction and fencing of 2 reservoirs, aerial seeding of 200 acres, a prescribed burn on 40 acres, and planting seedlings on 140 acres.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The Horse Mountain WSA contains relatively little evidence of human use. The human impacts which exist in the WSA consist of rangeland developments (3 dirt tanks, 1 nonfunctional windmill, $\frac{1}{2}$ mile of pipeline, $4\frac{3}{4}$ miles of fence), 7 miles of vehicle ways, and the evidence of past logging operations which cover about 275 acres. The old logging access routes, which are the most noticeable of these impacts, would generally return to a natural condition under wilderness management over the long-term. Because of good logging practices and the 20 years that have elapsed since operations ceased, the past logging does not significantly reduce the apparent naturalness of the WSA.

Approximately 600 acres in the southwestern portion of the WSA are open grassland. This area is adjacent to a County road, fence line, and ranch house, and is crossed by an access route to the West Horse Mountain ranch headquarters. These impacts are not well screened by topography or vegetation and are considered to reduce the apparent naturalness of this portion of the WSA.

The forested, mountainous portion of the WSA has been only lightly grazed and the few human impacts present are well screened by topography and vegetation. These combined factors produce a high degree of naturalness in this portion of the WSA.

b. Solitude

Horse Mountain rises over 2,500 feet above the Plains of San Agustin. This elevation difference enhances the feeling of remoteness from the few human activities outside the WSA which are visible from the mountain.

The only significant impact on solitude from activities occurring outside the WSA results from military training flights over the WSA. These low altitude overflights are intermittent and the impacts are of short duration. Solitude in the southwestern portion of the WSA is marginal due to the human influences described above.

In the WSA itself, the rugged topography with its forested ridges and valleys provides outstanding opportunities for solitude which might not otherwise be so abundant in a WSA of this size.

c. Primitive and Unconfined Recreation

The rugged mountain environment, with its ponderosa pine forest and numerous small meadows, provides an outstanding setting for hiking, camping, photography and other forms of backcountry recreation.

HORSE MOUNTAIN

Deer hunting accounts for most of the current recreational use in the WSA with other uses limited by the lack of legal access, distance from population centers, and limited public knowledge of the area. Horse Mountain also provides excellent opportunities for zoological sightseeing of such wildlife species as large raptors, deer, black bear, and mountain lion.

The scenic vistas, forested mountain environment, and interesting geologic features on Horse Mountain result in outstanding hiking and camping opportunities. These opportunities are limited only by the lack of recreational water sources.

2. Special Features

Wildlife and scenic values are significant special features of Horse Mountain. Wildlife values include habitat for large raptors such as golden eagles, wintering bald eagles, prairie falcons, and possibly peregrine falcons. The forested mountain environment also supports deer, elk, mountain lion, and black bear.

Scenic values are derived from the more than 2,500-foot difference in elevation between the summit of Horse Mountain and the surrounding Plains of San Agustin. This results in vistas which can extend for over 100 miles on a clear day. Scenic values are also enhanced by the mixed ponderosa and oak stands and interesting geological features found on the mountain.

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Horse Mountain WSA as being within the Upper Gila Mountains Forest Province. The potential natural vegetation is 2,462 acres of ponderosa pine/Douglas fir forest, 1,970 acres of pinyon-juniper woodland, and 600 acres of grama-galleta steppe.

b. Distance From Population Centers

The WSA is within 5 hours driving time of Albuquerque and Las Cruces, New Mexico and 6 hours driving time from El Paso, Texas.

B. Manageability

The majority of the Horse Mountain WSA could be managed to preserve the wilderness values which presently exist. Manageability is a judgment made by the BLM after considering such factors as: private and

State inholdings, valid existing rights, topography, and the overall land ownership pattern.

The "topographic island" character of Horse Mountain enhances wilderness management. The absence of private or State inholdings and private mineral rights within the WSA adds to the BLM's ability to manage the area as wilderness. The WSA has been segregated from appropriation under the mining laws since 1970, and there are no mining claims to complicate wilderness management.

Grandfathered livestock operations in the WSA are compatible with wilderness management. Required access for ranch operations would not create problems for wilderness management.

The isolated mountain character of Horse Mountain results in a WSA with good physiographic integrity. This configuration would be enhanced by a boundary adjustment which would place the boundary along an existing vehicle route at the base of the mountain. This would eliminate approximately 600 acres of open rangeland from the southwestern portion of the WSA. This area is impacted by an access route to a ranch house and a pipeline and is adjacent to a fence line, County road, and ranch house. These impacts significantly reduce the naturalness of this portion of the WSA. While this boundary adjustment would result in a WSA under 5,000 acres, it would improve the naturalness of the WSA as well as provide a more definable boundary. The remaining 4,432 acres could be managed to preserve the quality of the wilderness characteristics.

Manageability of the WSA would also be enhanced by the future acquisition, through voluntary exchange, of portions of Horse Mountain which are outside the WSA boundaries. This would include up to 2,880 acres of State and private land adjacent to the WSA boundaries and would result in virtually the entire mountain being managed as wilderness. These lands are legally described below.

Lands Recommended for Acquisition

<u>Legal Description</u>	<u>Acres</u>
State Land	
T. 3 S., R. 12 W., Section 32, All	640
T. 3 S., R. 13 W., Section 35, W $\frac{1}{2}$	320
Section 36, All	640
T. 4 S., R. 12 W., Section 17, N $\frac{1}{2}$	320
Section 18, N $\frac{1}{2}$	320
TOTAL	2,240
Private Land	
T. 3 S., R. 12 W., Section 33, S $\frac{1}{2}$	320
T. 4 S., R. 12 W., Section 4, N $\frac{1}{2}$	320
TOTAL	640

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 5,032 acres of public land in the Horse Mountain WSA would be recommended suitable for wilderness designation. (See Map 20-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981).

1. Impacts on Wilderness Values

Wilderness designation would provide long-term Congressional protection for these forested mountains. This long-term protection and wilderness management of the area would maintain and enhance naturalness, outstanding opportunities for solitude, outstanding opportunities for hiking, camping, photography, and deer hunting. Key wildlife species such as raptors, mule deer, elk, mountain lion, and javelina would also benefit from wilderness designation. Activities such as road construction, timber, development, oil and gas exploration, and other surface disturbing activities would be prohibited.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would preserve the wilderness resources in the Horse Mountain WSA.

2. Impacts on Nonenergy Locatable Minerals (Copper, Lead, Zinc, Tungsten, Silver, and Gold)

The Horse Mountain WSA is, at the present time, segregated from mineral entry and there are no existing mining claims. There would be no new impacts on locatable mineral resources as a result of wilderness designation.

3. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 6 head per section per year (699 AUMs). Under BLM's Wilderness Management Policy (WMP), there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include 4 $\frac{3}{4}$ miles of fence, 3 dirt tanks, and a $\frac{3}{4}$ mile pipeline. New rangeland facilities proposed include 1 $\frac{1}{2}$ miles of fence, 1 mile of pipeline, and 2 troughs. Maintenance of the existing facilities is allowable under the BLM WMP, with permits required when motorized vehicles or equipment are used. Minor repairs to fences would have to be accomplished on horseback.

The proposed 1½ mile of fence, 1 mile of pipeline, and 2 troughs on the West Horse Mountain allotment would not be constructed because of the cumulative impacts on natural values in the area and because the developments are not intended to enhance the rangeland resources within the WSA. This would affect efforts to reduce grazing pressure on lands outside the WSA.

Casual use of vehicles for inspection or repair of existing facilities would be precluded. Construction of new rangeland developments, their location, and types of materials used would be subject to the WMP in order to protect wilderness values. Vehicular access to the West Horse Mountain Ranch headquarters across the "dog leg" on existing routes would be denied.

Conclusion. Grazing use levels are projected to remain the same and no impacts on livestock grazing use levels would occur. Much of this WSA is presently worked by horseback because of the relatively small size and the rugged terrain of the area. For this reason, restrictions on casual vehicular access would not create serious impacts to livestock operations. However, restrictions on vehicle access to the West Horse Mountain Ranch Headquarters would result in an inconvenience to the operator.

B. Amended Boundary (Proposed Action)

Under the Amended Boundary Alternative, 4,432 acres of public land within the Horse Mountain WSA would be recommended suitable for wilderness designation (see Map 20-1 for amended WSA boundary). This amended boundary would exclude 600 acres of public land from the southwest boundary of the WSA. The new boundary would be along a vehicle route at the base of the mountain. The 600 acres excluded under this alternative are impacted by access routes and a fence.

In 4,432 acres designated as wilderness, closure to vehicle use will result in adverse impacts to existing and potential recreational vehicle use and opportunities for exploration and development of minerals and woodland products would be foregone. Short-term consumptive uses would not degrade the maintenance and enhancement of the long-term productivity. Although designation of wilderness constitutes a long-term commitment of resources, such designation is reversible by Congress.

In the 600 acres not designated as wilderness, unavoidable adverse effects of the proposed action will result from future surface disturbance activities. Over the long-term, these activities will reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation, and special wilderness features. Also, cumulative short-term consumptive uses of this land will lead to long-term degradation of wilderness values. Nondesignation of 600 acres as wilderness would leave this acreage available for development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

Wilderness designation of the 4,432 acres within the amended boundary would preserve the area's naturalness and outstanding opportunities for solitude and primitive recreation. These lands have a mountainous forested character and are of sufficient size to make practicable their preservation and use in an unimpaired condition. In addition to these mandatory wilderness characteristics, the area contains diverse wildlife habitat for such species as raptors, deer, elk, mountain lion, and javelina, and high scenic qualities. The impacts to these wilderness values would be the same as those discussed under the All Wilderness Alternative.

Continued livestock grazing operations, oil and gas exploration, and continued use of the access route to the West Horse Mountain Ranch Headquarters would result in eventual degradation of the grasslands on the 600 acres excluded from wilderness designation. Approximately 20 percent of the nonsuitable area would be affected.

Conclusion. Wilderness values would be maintained on 4,432 acres recommended suitable and lost on 600 acres recommended nonsuitable due to livestock and other developments and associated access roads created by oil and gas exploration, recreationists and others using the area.

2. Impacts on Nonenergy Locatable Minerals (Copper, Lead, Zinc, Tungsten, Silver, and Gold)

The Horse Mountain WSA is, at the present time, segregated from mineral entry and there are no existing mining claims. There would be no new impacts on locatable mineral resources.

3. Impacts on Livestock Grazing Use Levels

Livestock grazing use would continue at current levels, approximately 6 head (cattle) per section per year. The facilities which have been installed to support this level of livestock grazing use include $3\frac{3}{4}$ miles of fence and 3 dirt tanks. This boundary adjustment would eliminate restrictions on vehicular access to the West Horse Mountain allotment and would eliminate 600 acres of the 7,599-acre operation from wilderness management. Impacts to the West Horse Mountain ranch operations would be reduced by allowing vehicular access to the headquarters and eliminating approximately 1 mile of fence from designated wilderness.

The impacts on livestock operations inside the amended boundary would be the same as those described under the All Wilderness Alternative except conflicts with access to the West Horse Mountain Ranch Headquarters would be eliminated.

Conclusion. Grazing use levels are expected to remain at about the same level and no impacts are projected. Permits would be required for mechanized access for necessary maintenance of the above described rangeland developments.

C. No Wilderness

Under the No Wilderness Alternative, the entire 5,032 acres of public land in the Horse Mountain WSA would be recommended nonsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III. The most probable uses of the area would be to provide for oil and gas exploration, livestock grazing, wildlife habitat management, and recreation. Horse Mountain would remain under administrative segregation from the mining laws.

1. Impacts on Wilderness Values

The wilderness values and special features of the Horse Mountain WSA would not be provided with long-term Congressional protection. Since existing and proposed plans do not identify activities which would impair wilderness values, Horse Mountain could probably retain its wilderness values in the short-term. However, in the long-term, the cumulative effect of range, wildlife, and forestry projects, oil and gas exploration, and increased vehicular use and 7 miles of projected new access roads would reduce the area's apparent naturalness and opportunities for solitude. While the WSA contains an estimated 3.7 million board feet of timber, only 10 percent or 350,000 board feet would potentially be harvested over the long-term. However, numerous other areas better suited for logging exist outside the WSA and little interest in timber development has occurred in the past 25 years. Future development is not anticipated.

Conclusion. Over the long-term, the cumulative impacts of range, wildlife, and forestry projects, oil and gas exploration, increased vehicular use (less than 50 vehicles per year), and new access roads would degrade the area's wilderness values throughout the WSA. This is primarily due to the small size of the area.

2. Impacts on Nonenergy Locatable Minerals (Copper, Lead, Zinc, Tungsten, Silver, and Gold)

The impacts on nonenergy locatable minerals would be the same as those described under the All Wilderness Alternative. The area would continue to be segregated from mineral entry.

3. Impacts on Livestock Grazing Use Levels

There would be no impacts on livestock grazing use levels. Grazing use levels are projected to remain about the same (approximately 6 head (cattle) per section per year). The proposed 1½ miles of fence, 1 mile of pipeline and 2 troughs could be constructed. There would be no impacts to livestock grazing operations or use levels.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report was prepared after considering public input obtained from a variety of sources including mass mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the BLM New Mexico Statewide Wilderness Environmental Impact Statement (EIS).

Opposition to wilderness designation of Horse Mountain during the inventory phase came from livestock interest groups and many citizens of Catron County. Reasons for this opposition included: "The area doesn't appear natural due to the presence of rangeland developments and past logging;" "any additional wilderness in Catron County will impede economic progress in this underdeveloped area;" and "the small size of the Unit reduces its value as wilderness."

Support for wilderness designation came from recreational users and those interested in preserving the natural values of the area. Reasons cited included: the biological diversity present in this "island" ecosystem, the outstanding scenic and recreational qualities, and the lack of resource conflicts or values forgone by wilderness designation.

Nineteen letters were received on the draft version of this report. One respondent was opposed to designation of the WSA because it appears to have a favorable geologic environment for base and precious metals and is prospectively valuable for oil and gas.

Eighteen comments supported wilderness designation for the Horse Mountain WSA. Factors such as the WSA's scenic values, wildlife habitat, biological interest, geologic features, and manageability as wilderness were cited as enhancing the WSA's wilderness values.

Many of the comments favoring wilderness destination listed few conflicts with other resources and protection of the areas high scenic and recreational values. Comments also listed protection of unique ecosystems and biotic communities.

Comments opposing wilderness designation listed the area as being too small.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposed advocated by the New Mexico Wilderness Coalition. Alternative W included the Horse Mountain WSA and recommended wilderness designation for the entire WSA. Sixteen public inputs were received which specifically addressed the Horse Mountain WSA. Thirteen commentators favored wilderness designation and three opposed designation.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Horse Mountain WSA by 15 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The Coalition basically agrees with the BLM recommendations for Horse Mountain. Our rather minor additions are (1) the 520-acre parcel of BLM land northwest of the WSA and contiguous to the section of State land and the section of private land recommended for acquisition by the BLM; (2) the 120-acre parcel of private land immediately north of the State section; and (3) an additional 320 acres of State land on the western boundary."

Response: The Coalition's proposal describes a 520-acre parcel of public land northwest of the WSA. The BLM believes this should be described as northeast of the WSA instead of northwest. This parcel of public land did not meet the initial inventory criteria for wilderness and was eliminated from further wilderness review in the Initial Inventory Decision book published on July 9, 1979.

The 4,432 acres of public land recommended suitable for the Horse Mountain WSA represent essentially the same recommendation that was made by the Coalition with the exception of approximately 760 acres of private and 2,560 acres of State land. These lands were not studied by BLM because they are located outside the WSA. If the BLM acquired either the 760 acres of private or the 2,560 acres of State land at some future date and determined that these lands possessed wilderness values, BLM would formally study these lands. Depending on the results of the study, BLM would make a recommendation either favoring or opposing wilderness designation.

The first part of the paper discusses the importance of the study and the objectives of the research. It also mentions the scope of the study and the limitations. The second part of the paper discusses the methodology used in the study. It mentions the data sources and the data collection methods. The third part of the paper discusses the results of the study. It mentions the findings and the conclusions. The fourth part of the paper discusses the implications of the study. It mentions the practical implications and the theoretical implications. The fifth part of the paper discusses the future research. It mentions the areas for further research and the suggestions for future studies.

APPENDIX 21

JORNADA DEL MUERTO WSA (NM-020-055)

I. GENERAL DESCRIPTION

A. Location

The Jornada del Muerto (Journey of Death) Wilderness Study Area (WSA) is located in Socorro and Sierra Counties in south-central New Mexico. The WSA is situated 45 air miles south-southeast of the community of Socorro.

The U.S. Geological Survey (USGS) topographic maps covering the WSA are the Val Verde and Malpais Well, New Mexico quadrangles at the 15-minute scale.

B. Climate and Topography

The WSA is located within the Chihuahuan Desert. Maximum summer temperatures range from 95° to 105°F. Winter temperatures are generally mild during daylight hours (45° to 60°F) and moderately cold at night (15° to 30°F). Spring and fall temperatures tend to be mild. The spring season typically is accompanied by winds ranging from 10 to 50 mph.

Precipitation averages 8 inches per year. Over half the annual rainfall is received during July, August, and September as a result of summer thundershowers. A third of the year's precipitation usually falls during the winter months (December through March). The remaining moisture, normally 10 percent or less, is received in the spring and fall months.

The Jornada del Muerto WSA is comprised almost totally of a lava flow characterized by lava tubes, sink holes, pressure ridges, and other related volcanic features. Many of these structures have been silted in by fine windblown sand and clay materials. The surface of the WSA varies from deep sand on its fringes to continuously undulating, jagged, and fractured lava rock in the interior. Elevations range from 4,700 feet to 4,900 feet with a maximum relief of only 200 feet.

C. Land Status

The WSA contains 31,147 acres of public land. There are 640 acres of State inholdings within the WSA boundary. Approximately 1,920 acres of State land have been cherry-stemmed out of the WSA. (See Map 21-1 for land status within the WSA boundary.)

The Jornada del Muerto WSA is located entirely within the White Sands Missile Range (WSMR) Aerobee 350 Safety Evacuation Zone established by a Memorandum of Understanding (MOU) between the United States Army and the BLM in 1973.

JORNADA DEL MUERTO WSA (NM-020-055)

Proposed Action-All Wilderness Alternative

MAP 21-1 LAND STATUS

Legend

— WSA BOUNDARY

Land Status

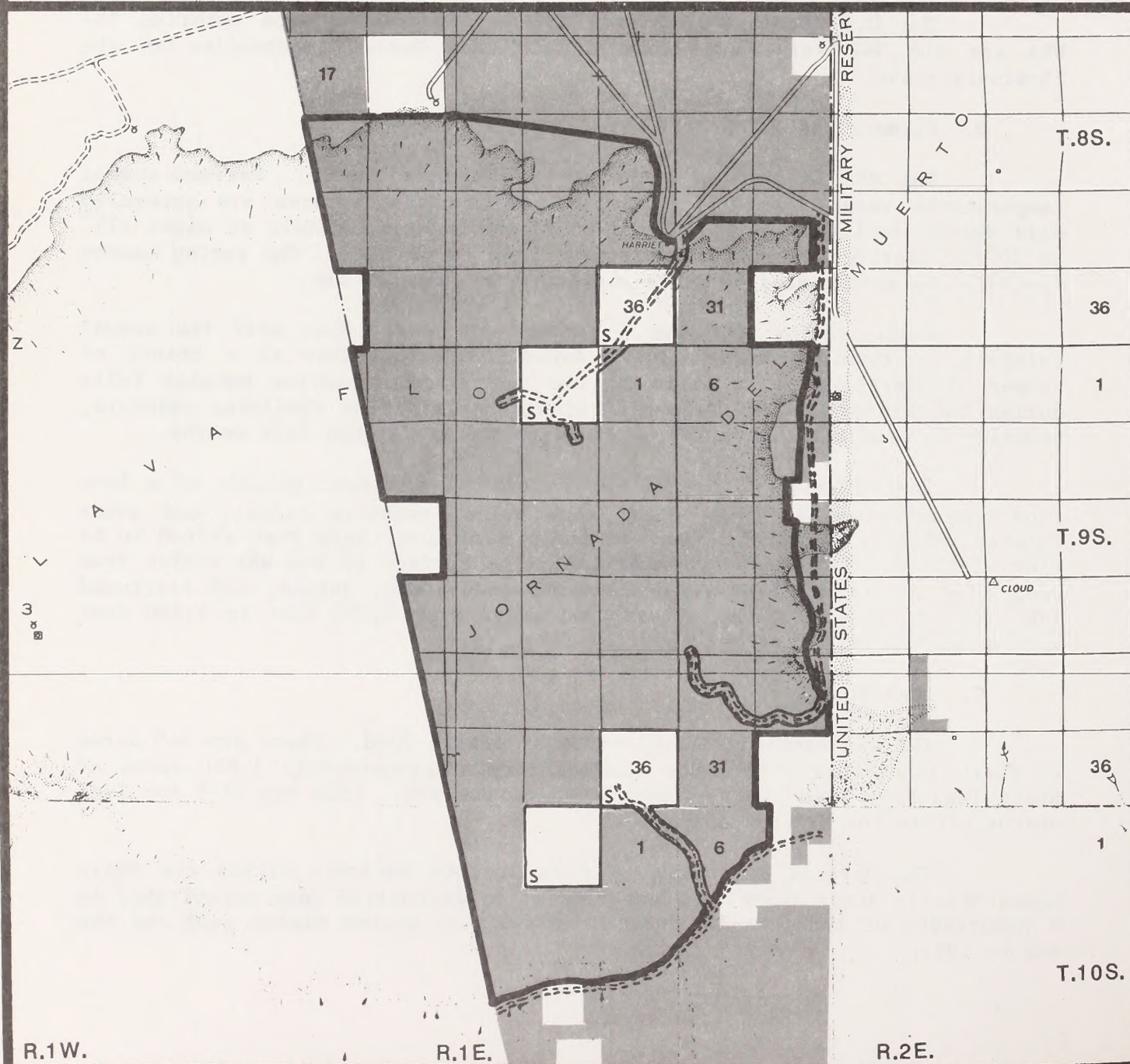
■ BLM

□ P PRIVATE

□ S STATE

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



D. Access

Primary legal access to the WSA is provided by U.S. Highway 380 on the north, then south on County Roads 2268 and 2322.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The All Wilderness Alternative is the proposed action for the Jornada del Muerto WSA because of the area's outstanding wilderness values, few resource conflicts, and strong public support for designation.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
--	--

None for this WSA

Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
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Impacts on the WSMR Safety Extension Area The White Sands Missile Range Safety Extension Area which includes the WSA is a management issue discussed in Chapter IV, Manageability, and not an environmental issue.

Impacts on Cultural Sites Cultural resources were not selected for detailed analysis because there are few known sites and resource development potential is low. A detailed site analysis would be required for any proposed surface disturbing activities.

Impacts on Threatened and Endangered Species: American Peregrine Falcon The U.S. Fish and Wildlife Service has concurred with BLM's finding of no significant effect on species Federally-listed. An analysis of potential impacts to threatened or endangered species would be required for any proposed surface disturbing activities.

Alternatives Selected for Detailed Analysis	Reasons
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All Wilderness (Proposed Action) 31,147 acres were identified during the inventory as having wilderness values.

No Wilderness The No Action Alternative required by NEPA.

Environmental Issues Selected for Detailed Analysis

The primary issues identified for this WSA are the impacts on the quality of the area's wilderness values and impacts on oil and gas potential because of moderate favorability. Additionally, impacts on livestock grazing use levels were identified and analyzed because of Statewide interest.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness (Proposed Action)	No Wilderness
°MANAGE TO MAINTAIN OR ENHANCE EXISTING VALUES ON 31,147 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	°MANAGE 31,147 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-Access to two pipelines along cherry-stemmed roads would be limited to the permittee.	-Motorized access to rangeland developments could occur as needed on existing roads (5 miles of cherry-stem roads). Projected motorized use is estimated at less than 100 vehicles annually over the long-term.
-Current livestock grazing levels of approximately 7 head per section per year would continue over the long-term.	-Current livestock grazing levels of approximately 7 head (cattle) per section per year (4,362 AUMs) would continue.
-31,147 acres with moderate potential for oil and gas would be closed to energy mineral leasing and mining claim location.	-31,147 acres with moderate potential for oil and gas would remain open to energy mineral leasing and exploration and mining claim location. Oil and gas exploration would consist of geophysical exploration leading to the drilling of 1 to 5 wildcat holes. Low level development could result in 1 producing well for every 15 holes drilled. Total surface disturbance would be 10 to 30 acres. There would also be an additional 5 to 15 miles of new access roads.
-Reasonable access would be granted to WSMR personnel to recover unmanned drones or missile debris which might impact in the area.	-Access would be granted to WSMR personnel to recover unmanned drones or missile debris which might impact in the area.
-Attempts would be made to acquire 4,420 acres of State land within and adjacent to the WSA.	-No special attempts would be made to acquire State land within and adjacent to the WSA.

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues	
	Impacts on Oil and Gas Exploration and Development	Impacts on Wilderness Values
All Wilderness (31,147 acres) (Proposed Action)	Opportunities to explore an area of 31,100 acres with moderate potential for oil and gas would be forgone.	The existing natural appearance of the lava flow would be maintained. Outstanding opportunities for solitude, hiking, camping, and photography, and special features of melanistic wildlife species would be maintained.
No Wilderness (31,147 acres)	No significant impact.	Wilderness values would be lost in the peripheral areas of the lava flow by oil and gas exploration. Up to 5 test holes would be drilled in the WSA resulting in approximately 2 acres of disturbance per hole. Up to 3 miles of new road would be constructed. The surface disturbance and increased vehicle access would degrade naturalness and opportunities for solitude in 5-10 percent of the WSA.



Jornada del Muerto WSA.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The geologic environment of the WSA is associated with the Jornada del Muerto syncline and the Tularosa Basin graben. Faulting and folding began in the early Tertiary period with major deformation occurring in middle Tertiary time. The WSA consists of the eastern half of the 0.76-million-year-old Jornada basalt flow. The flow is composed of permeable vesicular basalt less than 100 feet thick. The source of the flow, a crater 500 feet high and 1 mile in diameter, is located 1 mile west of the WSA, almost in the center of the lava flow. Geologic formations found in the WSA include Quaternary age basalt underlain by Quaternary age alluvium and the Tertiary age Santa Fe formation. Windblown sand, silt, and alluvium partially mantle the surface of the lava flow.

B. Water

The Jornada del Muerto WSA is located within the Jornada del Muerto Basin, a broad aggraded basin having poorly defined drainage except at central areas of subsidence. There are no permanent streams or surface water bodies within the WSA.

The ground water available in the WSA is found in formations under the Jornada basalt flow. The basalt is underlain by Quaternary age alluvium and riverine gravels up to 100 feet thick, which can yield small to large quantities of water. The alluvium overlies clay, silt, sand, and gravel of the Tertiary age Santa Fe formation which is known to yield small to moderate supplies of good quality water.

C. Soils

Approximately 95 percent of the surface area of the WSA is covered by a lava flow. Basalt rock outcrops cover 60 percent of the WSA. Soils within the interior of the flow are primarily composed of wind deposited sand and silt materials mixed with lava. Deep sandy soils with inclusions of deep loamy and shallow loamy soils over gypsum are found along the edge of the flow.

D. Vegetation

1. General

The vegetation of the WSA is typical of the Chihuahuan Desert. The area is comprised of the short grass vegetation type dominated by tobosa, black grama, and pappusgrass. Other common grass species include galleta, sand dropseed, fluffgrass, and various species of threeawns. Fourwing saltbush, creosote, Apacheplume, Mormon tea, soaptree yucca, broom snakeweed, cholla, prickly pear, and other cactus species are also commonly encountered.

2. Rare Plant Species

The U.S. Fish and Wildlife Service (FWS) has not listed any threatened or endangered plant species that may occur in the WSA. The WSA does contain habitat which offers potential for the occurrence of one State-listed endangered plant species, Cleome multicaulis, slender spiderflower (Natural Resources Department, State of New Mexico 1985).

E. Wildlife

1. General

One Standard Habitat Site (SHS) has been identified within the WSA. The habitat site is based on the combination of dominant vegetation and landform. The SHS supports 93 wildlife species, which include 24 mammal species, 31 reptile and amphibian species, and 38 resident and migratory bird species. A complete list of wildlife species found within the WSA is on file in the Socorro Resource Area Office.

Big game species indigenous to the WSA are pronghorn and mule deer. Pronghorn are relatively abundant in the WSA while mule deer densities are extremely low.

The most common predator is the coyote. Gray fox and badgers also inhabit the WSA. Common small mammals include desert cottontails, black-tailed jackrabbits, white-throated woodrats, and kangaroo rats.

The most common raptor species is Swainson's hawk. Golden eagles, red-tailed hawks, and marsh hawks are also frequently sighted.

A phenomenon peculiar to lava flows is that many animals living on them exhibit melanism, or protective dark coloration. A variety of melanistic species of lizards and melanistic western diamond-backed rattlesnakes have been found in the WSA.

2. Threatened or Endangered Fauna Species

One Federally-listed endangered animal species, the American peregrine falcon, may occur in the WSA. This species was included in a biological assessment (BLM 1982) which concluded that the WSA provides poor quality nesting habitat and there are no current or historically occurring eyries. In addition, little potential habitat exists for supporting migrating individuals because the WSA lacks a sufficient prey base and available water.

F. Visual

The WSA is an expansive desertland environment characterized by little topographic relief but considerable landscape diversity. The WSA is a grassland lying in a rugged, broken lava flow in the center of a large desert bolson surrounded by distant mountain ranges.

G. Cultural

One cultural site has been recorded within the WSA which consists of a small lava shelter, rock room outlines, basalt cairns, and associated artifacts. Additional sites are certain to be present within the WSA, but predicting site density and significance is impossible without further inventory. A folsom projectile point, historic structures, and other artifacts have been located just outside the WSA. This suggests the cultural resources of the WSA could span 10,000 years of human occupation.

H. Air

Generally, the quality of the air within the Jornada del Muerto WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May), when prevailing winds result in dust storms.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resources potential of the lands within the WSA is shown on Map 21-2 and Table 3 below.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE JORNADA DEL MUERTO WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Mesozoic and Paleozoic continental and marine sedimentary rocks; axis of the Jornada del Muerto Basin	Moderate	31,100
Geothermal	Possible igneous plutons associated with the Rio Grande rift	Low	--

Note: *Acreage was not calculated for areas with low potential.

1. Energy Minerals

As of April 15, 1986, there were no mineral leases in the WSA.

a. Oil and Gas

There are no known occurrences of oil and gas within the Jornada del Muerto WSA, but the possibility exists that such reserves are present. The WSA is located in the northern half of the Jornada del Muerto basin which contains potential petroleum source and reservoir rocks. Oil and gas targets in the basin are Mesozoic and Paleozoic continental and marine sedimentary rocks. The geologic environment indicates possible petroleum accumulations beneath the surface of the WSA. The oil and gas potential is considered moderate.

b. Geothermal

Although the warm water pumped from Crater Well, 2 miles outside the WSA boundary, indicates abnormal heat flow in the area, the potential for undiscovered geothermal resources in the WSA is difficult to predict due to conflicting evidence. Generally, volcanic activity of the type associated with the Jornada Lava Flow does not produce commercially exploitable geothermal systems. Such lavas erupt from deep seated magma bodies along small, localized fissures and cool rapidly. For these reasons, the geothermal potential of the WSA is considered low.

JORNADA DEL MUERTO WSA (NM-020-055)

Proposed Action-All Wilderness Alternative

MAP 21-2 MINERAL RESOURCE POTENTIAL *

Legend

— WSA BOUNDARY

Land Status

■ BLM

□ PRIVATE

□ STATE

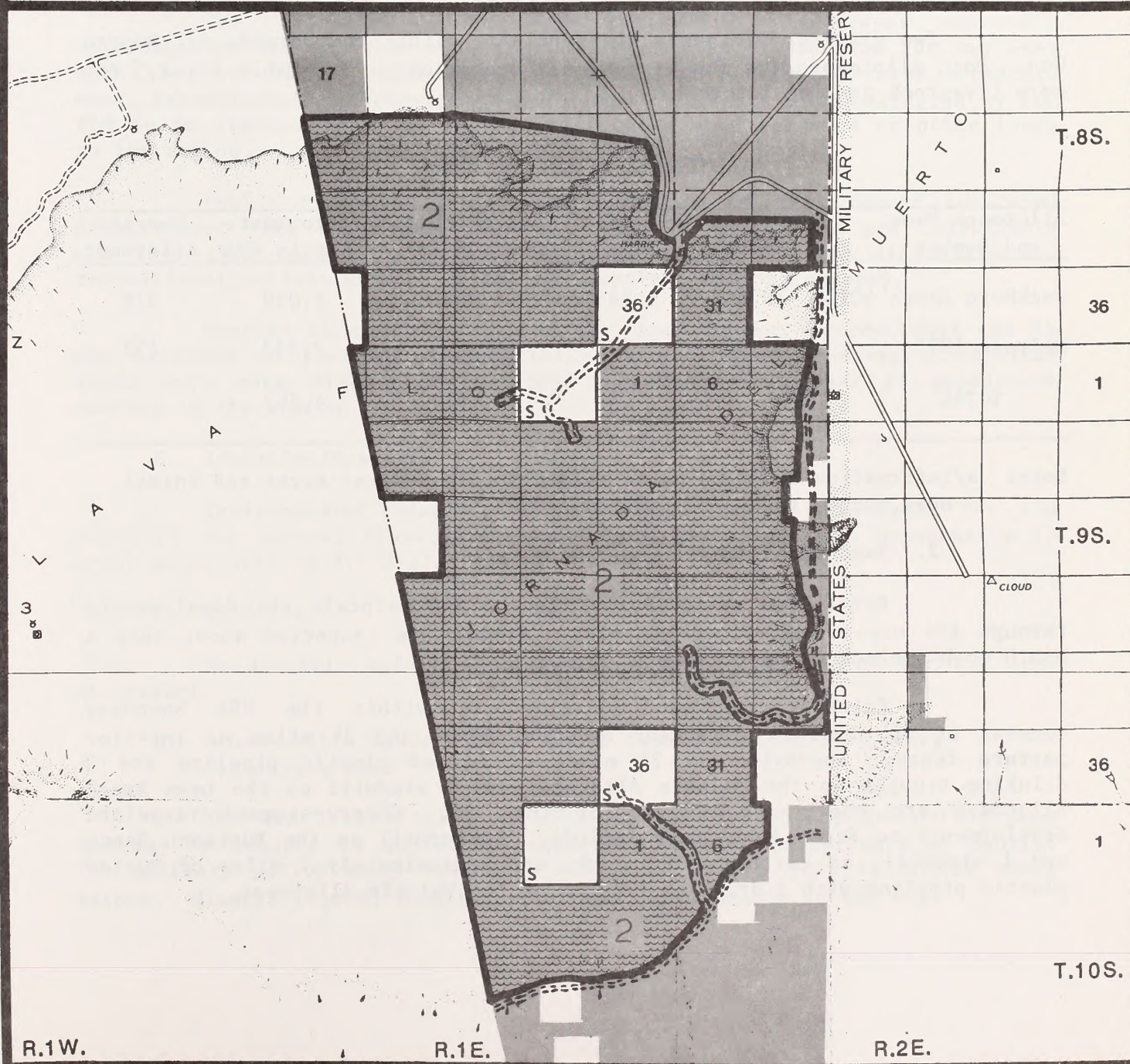


Oil and Gas

Scale: 1/2 inch = 1 mile

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Source: USDI, BLM, Las Cruces District, April, 1986.



2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA. The potential for nonenergy mineral resources in the WSA is considered low to nonexistent.

B. Watershed

The Jornada del Muerto WSA is located entirely within the Slash watershed. The WSA is in the slight erosion class and has a projected static erosion trend. There are no water control structures or land treatments within the WSA.

C. Livestock Grazing

Two grazing allotments lie partially within the Jornada del Muerto WSA. Both allotments are run as cow-calf operations. See Table 4 and 5 for more livestock grazing information.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Approximate Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Buckhorn Ranch 6017	40,848	5,845	14,956	2,029	37%
Malpais 1293	37,368	5,427	16,191	2,333	43%
TOTAL			31,147	4,362	

Note: ^{a/}Information shown in table reflects only Federal acres and animal unit months (AUMs) on public land.

2. Ranch Management

Permittees periodically inspect and maintain the developments through the use of motorized vehicles. Fences are inspected about once a month on horseback or by vehicle.

Existing rangeland developments within the WSA boundary consist of 4½ miles of allotment boundary fence and 3½ miles of interior pasture fence. Approximately 2½ miles of buried plastic pipeline and 3 drinking troughs on the Malpais Allotment and 1 windmill on the Lava Ranch Allotment are cherry-stemmed out of the WSA. Cherry-stemmed rangeland developments on State inholdings include: 1 windmill on the Buckhorn Ranch and 1 windmill, an earthen stock tank, and approximately 2 miles of buried plastic pipeline with 2 drinking troughs on the Malpais Allotment.

Boundary and interior pasture fences forming the WSA Boundary include 10 miles in the Buckhorn Ranch and 15 miles in the Malpais Allotment.

3. Potential Rangeland Developments

No additional rangeland developments are planned in the WSA at this time (short-term). However, long-term developments, such as additional fences could occur.

D. Recreation

Recreational use of the WSA is very low and limited to hunting and occasional sightseeing.

The expansive vistas of surrounding landscapes and the opportunities for solitude make the WSA potentially attractive for day uses such as short hikes, picnicking, and photography. Despite these potential uses, recreational opportunities within the WSA itself are considered by the BLM to be limited for most recreational users when compared to other lands in the region.

Public comments on the draft version of this report indicated disagreement with this assessment and revealed that there are individuals who find this rugged, expansive landscape challenging and attractive for recreational activities such as hiking, camping, and photography.

Despite this attractiveness for some people, recreational use is not expected to increase substantially in the future because of similar lands with more diverse recreational opportunities closer to population centers in the region.

E. Education/Research

Environmental education opportunities may be available for the study of the natural history of desert-lava grassland. An opportunity to study melanistic wildlife also exists.

F. Wildlife

No specific wildlife management actions are planned for the area at present.

G. Other--White Sands Missile Range (WSMR) Aerobee 350 Safety Evacuation Zone

The WSA lies within the WSMR Aerobee 350 Safety Evacuation Zone and may be subject to occasional impacts from missile hardware or debris. The military periodically evacuates residents of the Zone to ensure their safety. Missile related impacts occur very infrequently in the WSA.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The imprints of man within the heart of the WSA are minimal. Intrusions within the WSA boundary consist of 8 miles of grazing allotment boundary and interior pasture fences. Three windmills, an earthen stock tank, four and one-half miles of buried water pipeline, and five drinking troughs are located on State and Federal lands that have been cherry-stemmed out of the WSA. Overall, the naturalness values of the interior of the WSA are of high quality.

The boundaries of the WSA are impacted by 25 miles of fences and 2½ miles of buried pipeline with 3 drinking troughs. These developments are technically outside the WSA boundary. The concentration of rangeland developments along the WSA's periphery only slightly detracts from the generally high quality of the area's naturalness values. The 5 miles of cherry-stemmed roads are generally screened by topography.

b. Solitude

The Jornada del Muerto WSA offers outstanding opportunities for solitude. The WSA lies in one of the most remote, little visited regions of New Mexico. It is a vast, rugged lava landscape surrounded by grassland desert and distant mountain ranges.

c. Primitive and Unconfined Recreation

Outstanding opportunities for hiking, photography, and sightseeing are available in the Jornada lava flow. For the average individual, the WSA would likely prove unattractive for backcountry use. However, for those persons who appreciate expansive and isolated desert environments, the recreational values of this WSA would be considered high. The WSA is well suited to late fall and winter recreational use.

2. Special Features

A variety of lizards and western diamond-backed rattlesnakes found in the Jornada del Muerto WSA exhibit melanism or dark protective coloration; a phenomenon peculiar to lava flows.

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Jornada del Muerto WSA as being in the Chihuahuan Desert Province with a potential natural vegetation of grama-tobosa shrubsteppe. However, the WSA's Chihuahuan Desert associations are strongly influenced by the unique edaphic, hydrological, and structural characteristics of the lava flow. For example, soaptree yucca occur on the periphery of the WSA which approach 30 feet in height.

b. Distance From Population Centers

Two cities, Albuquerque and Las Cruces, New Mexico, identified in the 1980 census as Standard Metropolitan Statistical Areas (SMSAs), are located within 3 hours driving time of the WSA. El Paso, Texas, is within 4 hours driving time of the WSA.

B. Manageability

The Jornada del Muerto WSA could be managed as wilderness. This judgment was made after considering such factors as valid existing rights, the White Sands Missile Range (WSMR) Aerobee 350 Safety Evacuation Zone, off-road vehicle use, and State inholdings.

Livestock management, including required access for maintenance of existing rangeland developments, is not expected to create problems for wilderness management. With the exception of fences that do not have existing vehicular access, all rangeland developments within the WSA are located along cherry-stemmed roads.

The WSA lies within the WSMR Aerobee 350 Safety Evacuation Zone that must be evacuated for the safety of area residents. The Safety Zone is necessary for an indefinite period of time to support future military programs requiring a test range in excess of that provided by the main WSMR. The WSMR requires reasonable access to the Safety Zone to recover missile debris. However, these access needs are not expected to create serious wilderness management problems because only one missile impact is known to have occurred in the WSA in the past 24 years. The recovery of that debris did not significantly alter the natural values of the WSA.

The military's need to periodically evacuate the area for safety reasons will complicate wilderness management but will not render the area unmanageable as wilderness. To assist the military in their periodic evacuations of the area, a permit system could be a desirable feature of the wilderness management plan that will be developed if Congress designates the area. The permit system would allow BLM to control use of the area to a greater degree than it has in the past and reduce conflicts with the military's need to ensure safety in the area.

The wilderness management potential of the WSA in terms of effectively precluding vehicular access to the area is excellent. Off-road vehicle use is limited by the rugged nature of the volcanic landscape. Although several jeep trails extend into the area, access to them could be effectively closed to use by the general public.

The acquisition of 640 acres of State inholdings, 1,920 acres of cherry-stemmed State land, and 1,280 acres of State land adjacent to the WSA through voluntary exchange would enhance manageability. The lands legally described below should be considered for acquisition if the area is designated wilderness.

Lands Recommended for Acquisition

<u>Legal Description</u>	<u>Acres</u>
State Land	
T. 8 S., R. 1 E., Section 32 (that portion east of the Pedro Armendariz Grant)	160
Section 36, All	640
T. 8 S., R. 2 E., Section 32, All	640
T. 9 S., R. 1 E., Section 2, All	640
Section 16 (that portion east of the Pedro Armendariz Grant)	420
Section 36, All	640
T. 9 S., R. 2 E., Section 32, All	640
T. 10 S., R. 1 E., Section 2, All	640
TOTAL	4,420

Private Land*

(*Acres are only estimated as the area is unsurveyed.)

T. 8 S., R. 2 E., Section 16 (that portion west of the Pedro Armendariz Grant)	220
Section 17, All	640
Section 18, SW $\frac{1}{4}$	160
Section 19, E $\frac{1}{2}$	320
Section 20, All	640
Section 21 (that portion west of the Pedro Armendariz Grant)	320
TOTAL	2,300

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness (Proposed Action)

Under the All Wilderness Alternative, the entire 31,147 acres of public land within the Jornada del Muerto WSA would be recommended as suitable for wilderness designation. (See Map 21-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (WMP)(BLM 1981).

In 31,147 acres designated as wilderness, closure to vehicle use will result in adverse impacts to existing and potential recreational vehicle use and opportunities for exploration and development of minerals would be foregone. Short-term consumptive uses would not degrade the maintenance and enhancement of the long-term productivity. Although designation of wilderness constitutes a long-term commitment of resources, such designation is reversible by Congress.

1. Impacts on Wilderness Values

Wilderness designation would impact wilderness values by providing the resources in the area with long-term Congressional protection. Activities such as road construction and other surface disturbing activities would be prohibited. The lava flow would retain its natural appearance, outstanding opportunities for solitude, hiking, photography, and sightseeing, and opportunities to study melanistic reptiles in a natural environment.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would preserve the wilderness resources of the Jornada del Muerto WSA.

2. Impacts on Oil and Gas Exploration and Development

Despite moderate oil and gas potential on 31,100 acres in the Jornada del Muerto WSA, there has been no exploration drilling within the area. No new leases would be allowed in the area after wilderness designation. If a discovery were made in an area adjacent to the WSA, oil and gas resources would be impacted because there would no longer be an opportunity to fully evaluate the oil and gas potential in the WSA and potentially develop these resources.

Conclusion. Under the All Wilderness Alternative, the opportunity to explore for and fully determine the oil and gas potential would be forgone on 31,100 acres in the long-term.

3. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 7 head per section (4,362 AUMs). Under BLM's Wilderness Management Policy (WMP), there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed within the WSA to support this level of livestock grazing use include 6 miles of fence. New rangeland facilities are not planned. Maintenance of the existing facilities is allowable under the BLM WMP, with permits required when motorized vehicles or equipment are used. Minor repairs to fences would have to be accomplished on horseback.

Conclusion. Because of restricted vehicular access, an inconvenience to the livestock operator would result. No impacts on livestock grazing use levels would occur in either the short-term or the long-term.

B. No Wilderness

Under the No Wilderness Alternative, the entire 31,147 acres of public land within the Jornada del Muerto WSA would be recommended unsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III. The most probable uses of the area would be development of rangeland resources in the long-term (additional fences or pipelines), possible energy and mineral exploration in the long-term, and other traditional uses.

1. Impacts on Wilderness Values

The naturalness, outstanding opportunities for solitude and primitive recreation, and special features of the Jornada del Muerto WSA would not be provided with long-term Congressional protection. In the long-term, oil and gas exploration would occur and would consist of geophysical exploration leading to drilling of up to 5 exploratory wells along the periphery of the WSA. However, due to the lack of producing wells in the general area and the low number of potential exploratory drill holes in the WSA, no production is anticipated to occur.

Conclusion. In the long-term, wilderness values in 3 percent of the area, primarily along the boundaries of the WSA, would be degraded through road development and motorized access from energy and mineral exploration and by recreationists and others. Future development of rangeland developments would also reduce the area's naturalness values over the long-term.

2. Impacts on Oil and Gas Exploration and Development

Under this alternative, the entire area would remain open to oil and gas leasing. There would be no impacts on oil and gas exploration or development.

3. Impacts on Livestock Grazing Use Levels

All rangeland developments would be checked and maintained on an as needed basis, allowing the use of motorized equipment. The permittees would be allowed to use vehicles as at present to check cattle. Livestock grazing would continue at the levels currently existing (approximately 7 head per section per year).

Conclusion. There would be no impacts on livestock grazing operations or use levels over the long-term.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report has been prepared with public input obtained by large mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the Statewide Wilderness EIS.

Public involvement in the wilderness inventory and study process has generally indicated support for designation of the Jornada del Muerto WSA as a wilderness area. Reasons cited have emphasized the WSA's outstanding solitude, natural, and recreation values.

Opposition has been expressed by area permittees who feel that wilderness designation would adversely impact their ranch operations.

White Sands Missile Range (WSMR) personnel expressed concern that designation of the Jornada del Muerto WSA as wilderness could potentially conflict with military operations within the Aerobee 350 Safety Evacuation Zone.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 27 letters were received. Five were opposed to wilderness designation while twenty-two favored wilderness designation for the Jornada del Muerto WSA.

These comments revealed substantial disagreement with the BLM's initial assessment of the WSA. The disagreements centered primarily around BLM's assessment of the manageability problems resulting from WSMR's needs and activities in the Aerobee 350 Safety Evacuation Zone. There were also differences of opinion regarding the attractiveness and recreational opportunities offered by the WSA.

Concern was expressed by WSMR and others that wilderness designation would increase the low levels of visitor use which presently occur in the area, thereby increasing safety and security problems in the Aerobee 350 Evacuation Zone.

During the public coment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Jornada del Muerto WSA and recommended wilderness designation for the entire WSA as well as additional adjacent land. Specific comments were directed to the Jornada del Muerto WSA by 13 commentators, of which 11 favored wilderness designation and 2 opposed.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Jornada del Muerto WSA by 25 commentators. Comments on this WAR which a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The Coalition supports the BLM recommendation with the addition of approximately two sections of private land adjacent to the west-central boundary of the WSA. The proposed parcel contains the crater from which the lava flow originated and a lava tube extension of this crater. The acquisition would form a more complete unit representing the lava flow. Also, the lava tube is the one housing the bat population mentioned above."

Response: The 31,147 acres recommended suitable for the Jornada del Muerto WSA by BLM represents the same recommendation that was made by the Coalition with the exception of approximately 1,280 acres of private land. These 1,280 acres were not studied for wilderness or identified for acquisition by BLM because it is private land located outside the boundaries of the WSA. If BLM acquired these sections at some future date and determined that this land possessed wilderness values, BLM would formally study this land. Depending on the results of the study, BLM would make a recommendation either favoring or opposing wilderness designation.

APPENDIX 22

MESITA BLANCA WSA (NM-020-018)

I. GENERAL DESCRIPTION

A. Location

The Mesita Blanca Wilderness Study Area (WSA) is located in Catron County in west-central New Mexico. The WSA is approximately 4 miles north of U.S. Highway 60 and 20 air miles west of Quemado.

The U.S. Geological Survey (USGS) topographic maps covering the WSA are the Blaines Lake, Goat Springs, Salazar Canyon, and Zuni Salt Lake quadrangles. All of these are New Mexico quadrangles at the 7½-minute scale.

B. Climate and Topography

The WSA has a generally mild, semiarid climate. Precipitation is normally received during the warmer 6 months of the year. Half of the annual average precipitation falls from July through September primarily from brief, but often heavy, thundershowers. Winter is usually the driest season. Annual precipitation averages about 11 inches across the entire WSA.

Temperatures in the summer average in the 80's during the days and in the 40's at night. Winter temperatures normally range from the 40's during daylight hours to the low teens at night. Temperature extremes range from -30°F in winter to over 100°F in summer. Mean annual maximum and minimum temperatures for the area are 65°F and 30°F, respectively. The growing season averages 103 days and usually lasts from the middle of June to the end of September. The prevailing winds across the WSA are from the southwest.

The Mesita Blanca WSA is a flat to rolling grassland broken by isolated sandstone and basalt mesas which are characterized by vertical cliffs and broken topography. The dominant topographic feature and highest point in the WSA is the Red Hill Cinder Cone and its associated 2,000-acre lava flow. Elevations in the WSA range from 6,400 feet to 7,679 feet, resulting in an elevation difference of 1,279 feet.

C. Land Status

The WSA contains 19,414 acres of public land including 2,985 acres of split-estate (Federal surface/non-Federal subsurface), and 160 acres of private inholdings. (See Map 22-1 for land status within the WSA boundary.)

MESITA BLANCA WSA (NM-020-018)
Proposed Action-No Wilderness Alternative

MAP 22-1
LAND STATUS

Legend

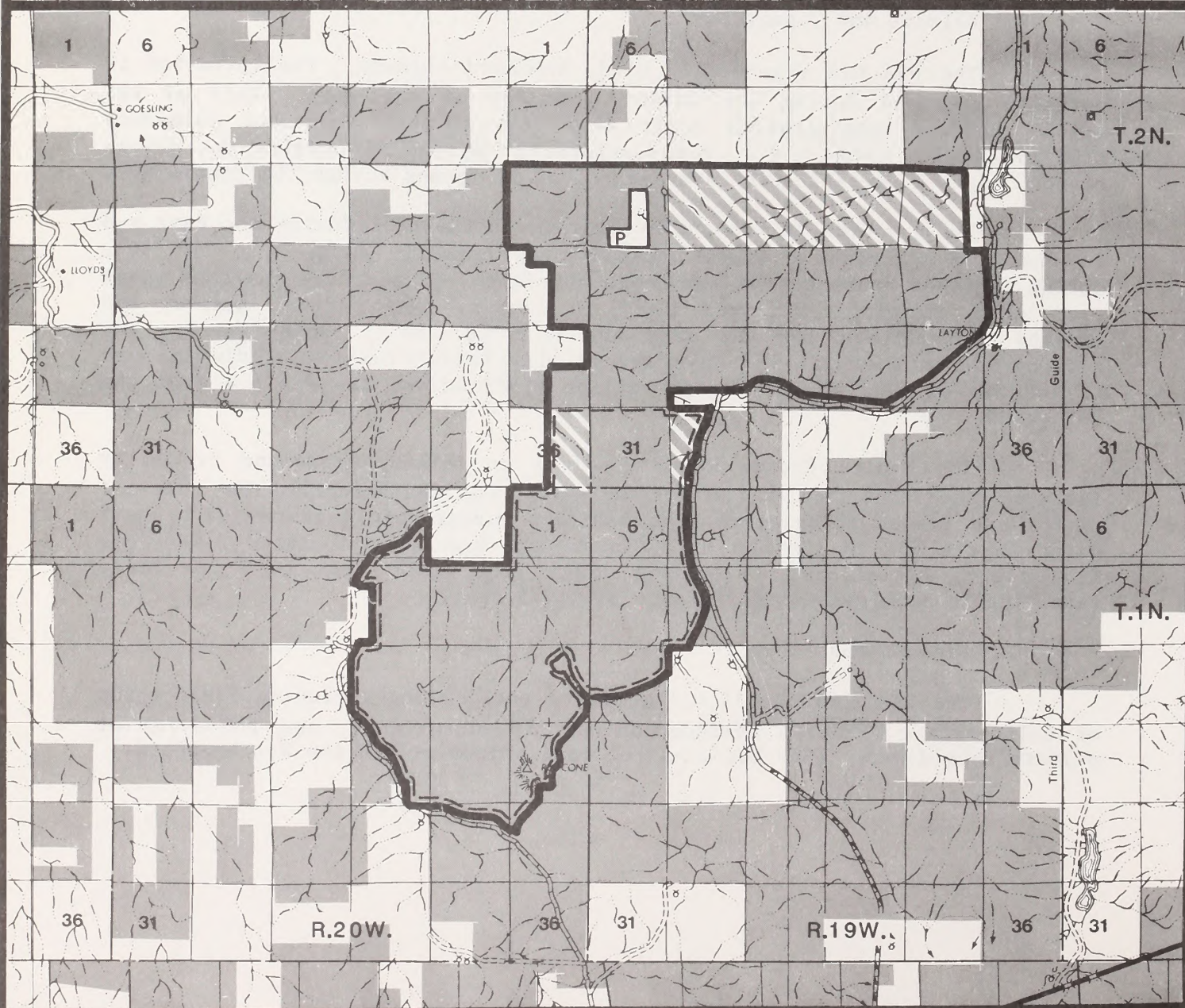
- WSA BOUNDARY
--- AMENDED BOUNDARY

Land Status

- BLM
P PRIVATE
S STATE
BLM SURFACE/NON BLM SUBSURFACE

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



D. Access

The Mesita Blanca WSA has good physical and legal access. County Road A007 forms a portion of the eastern boundary of the WSA with County Road A005 providing access to the western edge of the WSA. There are also unimproved ranch access routes which provide east-west access through the southern and northern portions of the WSA.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis, as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposed action and alternatives is provided in Table 1. The No Wilderness Alternative is the proposed action for the Mesita Blanca WSA because the naturalness, solitude, and opportunities for primitive and unconfined recreation marginally meet the required criteria for wilderness designation and these values are better represented in other areas recommended as suitable in the Socorro Resource Area..

The significant environmental consequences by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
None for this WSA.	.
Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
Impacts on Exploration and Development of Locatable Minerals	Exploration and development of these mineral resources were not selected for detailed analysis because of the low probability of their occurrence within the WSA.
Impacts on Sand and Gravel Development	Sand and gravel was not selected for detailed analysis because of the availability of these materials elsewhere.
Impacts on Cultural Resources	Cultural resources were not selected for detailed analysis because of the low probability for resource development and the known sites are away from development areas. A detailed site analysis would be required for any proposed surface disturbing activities.
Impacts on Fuelwood Sales	Fuelwood was not selected for detailed analysis because of the availability of similar resources closer to population centers and the lack of demand for fuelwood in the vicinity of the WSA.
Alternatives Selected for Detailed Analysis	Reasons
All Wilderness	19,414 acres were identified during the inventory as having wilderness values.
Amended Boundary	This alternative retains that portion of the WSA with the highest quality naturalness, opportunities for solitude and primitive recreation, and scenic values. The majority (2,400 acres) of split-estate land would be excluded. Potential management problems would be reduced.
No Wilderness (Proposed Action)	The No Action Alternative required by NEPA.
Environmental Issues Selected for Detailed Analysis	
The three primary issues for this WSA are impacts on the quality of the area's wilderness values, impacts on cinder development, and impacts on livestock grazing use levels.	
The wilderness values issue is required by the BLM Wilderness Study Policy. One of the major attractions of the WSA is it's remoteness and significant cultural resources.	
Concerns regarding cinder development foregone as a result of wilderness designation.	
Concerns regarding livestock grazing use levels include the inconvenience to livestock operators from vehicle restrictions under wilderness designation, as well as an expected increase in vandalism of rangeland developments and harassment of livestock if it is not designated wilderness.	

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary	No Wilderness (Proposed Action)
<p>MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 19,414 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Attempts would be made to acquire 160 acres of private land within the WSA.</p> <p>-Close 21 1/2 miles of vehicle ways which currently receive low use (less than 100 vehicles per year).</p> <p>-Require permits for vehicular access to maintain 7 miles of pipeline, 5 drinking troughs, and 5 dirt tanks. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.</p> <p>-Current livestock grazing levels of approximately 8 head per section per year would continue.</p> <p>-16,429 acres of Federal mineral estate would be closed to energy minerals leasing, and mining claim location.</p> <p>-19,414 acres would be closed to mineral material sales.</p>	<p>MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 9,300 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-No special attempts would be made to acquire 160 acres of private land within the WSA.</p> <p>-Close 11 1/2 miles of vehicle ways which currently receive low use (less than 100 vehicles per year).</p> <p>-Require permits for vehicular access to maintain 3/4 miles of pipeline, 1 drinking trough, and 1 dirt tank. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.</p> <p>-Current livestock grazing levels of approximately 8 head per section per year would continue.</p> <p>-8,715 acres of Federal mineral estate would be closed to energy and mineral leasing and mining claim location.</p>	<p>MANAGE 19,414 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-No special attempts would be made to acquire 160 acres of private land within the WSA.</p> <p>-Vehicle use would be allowed to continue on 21 1/2 miles of vehicle ways which would receive low use (less than 100 vehicles per year). Restrictions on vehicular access would not apply. Because of energy and mineral exploration and motorized recreational use, an additional 5 miles of vehicle ways are projected over the long-term.</p> <p>Vehicle access restrictions for maintenance of rangeland developments would not apply.</p> <p>-Current livestock grazing levels of approximately 8 head per section per year would continue over the long-term.</p> <p>-16,429 acres of Federal mineral estate would remain open to energy minerals leasing, and mining claim location.</p> <p>-19,414 acres would be open to mineral material sales. There are 300 acres of high volcanic cinder potential, 2,000 acres of moderate cinder potential, and 800 acres of moderate sand and gravel potential. In areas of high cinder potential, there could be 1 to 4 sales per year. In areas of moderate cinder potential, there could be 1 to 2 sales per year. In areas of moderate sand and gravel potential, there could be 1 to 2 sales per year. Total surface disturbance resulting from these sales in the next 10 years would be 5 to 10 acres and 1 to 3 miles of new access roads.</p>

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES
(Concluded)

All Wilderness	Amended Boundary	No Wilderness (Proposed Action)
-Reasonable access to 2,985 acres of State-owned mineral estate would be permitted with consideration for protecting wilderness values. The need for access is not anticipated due to the low mineral potential on these acres.	-Reasonable access to 585 acres of State-owned mineral estate would be permitted with consideration for protecting wilderness values. The need for access is not anticipated due to the low mineral potential in these areas.	-Surface access and development of 2,985 acres of State-owned subsurface mineral estate would not be restricted.
-Management activities proposed in the Stokes Flat and Headquarters allotments' watershed plans would be restricted by the Wilderness Management Plan and subject to the BLM Director's approval. Projects include erosion control structures such as dams and sediment impoundments.	-Management activities proposed in the Stokes Flat allotment watershed plan would be restricted by the Wilderness Management Plan and subject to the BLM Director's approval. These include erosion control structures.	-Management activities such as erosion control structures proposed in the Stokes Flat and Headquarters allotments' watershed plans could be implemented. Erosion control structures would consist of up to 10 small, 1-3 acre check dams and up to 20 wire sediment catches.
	MANAGE 10,114 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	
	-10 miles of vehicle ways would remain open for motor vehicle use. Over the long-term, an additional 5 miles of new access routes are projected due to mineral and energy exploration and recreational use.	
	-Permits would not be required to maintain rangeland developments.	
	-Current livestock grazing levels of approximately 8 head per section per year would continue over the long-term.	
	-Surface access and development of 2,400 of State-owned subsurface mineral estate would not be restricted.	
	-Management activities proposed in the Headquarters allotment watershed plan would not be restricted and could be implemented. Erosion control structures would consist of up to 10 small, 1-3 acre check dams and up to 20 wire sediment catches.	

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues	
	Impacts on Wilderness Values	Impacts on Cinder Development
All Wilderness (19,414 acres)	The natural character of the cinder cone, lava flow, and isolated sandstone and basalt mesas, opportunities for solitude and habitation sites from the Archaic period would be maintained.	Based upon past interest in the area, no impact on sales in the short-term. In the long-term, mineral material sales would be precluded. Access to private land or for exploration of mineral potential would be restricted to a manner to cause least impacts to wilderness.
Amended Boundary (9,300 acres suitable, 10,114 acres nonsuitable)	The natural character of the cinder cone and lava flow, opportunities for solitude, and a few of the habitation sites would be maintained. In the long-term, the naturalness in 10-20 percent of the nonsuitable area would be diminished as a result of road construction and mineral exploration and development.	Based upon past interest in the area, no impact on sales would occur in the short-term. In the long-term, mineral material sales would be precluded on 9,300 acres but allowed on 10,114 acres. Exploration of mineral potential on split-estate acreage would be restricted to the least impairing method in the suitable area and allowed without wilderness restrictions in the nonsuitable area.
No Wilderness (19,414 acres) (Proposed Action)	Wilderness values would be adversely affected by mineral material sales, new rangeland and watershed developments, vehicle use, and woodcutting. The impacts of these activities would degrade wilderness values on approximately 75 percent of the area. Only the lava flow would remain in an essentially natural condition. However, some development of cinders is possible around Red-Hill Cinder Cone.	No significant impact.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Mesita Blanca WSA lies within the southern portion of the Colorado Plateau. Gently southeastward-dipping sediments of Cretaceous age, primarily the Mesaverde group and Mancos shale, dominate the surface of the WSA. Natural erosion of the sediments has produced mesas of low relief throughout the area. Quaternary basalt flows and a few related cinder cones (the most prominent being the Red Hill Cinder Cone) cap portions of the southern extension of the WSA.

Exploration wells drilled within the region provide evidence that Precambrian granite, Permian sediments, and Triassic sediments are present beneath the surficial deposits.

In general, sedimentary rocks, which originally covered exposed Precambrian granite, were regionally uplifted and eroded. These sediments were then partially covered with Tertiary volcanic sediments and intruded and capped by Quaternary basalts.

B. Water

The Mesita Blanca WSA is located in the Little Colorado River sub-basin. The principal stream system is Carrizo Creek, but neither it nor other minor drainages found in the Mesita Blanca WSA are perennial. Drainage ways are not deeply entrenched and are subject to flash floods following spring snow melt and heavy localized summer thundershowers. Flash floods generally are confined to tributaries and are dissipated in the main streams. Earthen type reservoirs, designed to catch and store runoff, normally contain water 6 months of the year. Quality data for the Little Colorado sub-basin are not available.

The source of all ground water in the Little Colorado sub-basin is precipitation. No ground water is known to enter the basin from outside areas. Most rock formations present will yield enough ground water locally to supply livestock needs. The alluvium of stream valleys and bolson fill are the most important ground water reservoirs in the WSA. There is a large volume of ground water available for development in the Little Colorado sub-basin, but is so distributed as to make recovery in large amounts uneconomical. In general, ground water from stream-valley alluvium and bolson deposits is of good quality and suitable for domestic and stock uses. Total dissolved solids average 250 parts per million (ppm), but can range up to 3,000 ppm. Ground water from intrusive and volcanic rocks is generally of good quality, but tends to be more highly mineralized. In the sedimentary rocks of Cambrian to Cretaceous age, ground water is usually highly mineralized.

C. Soils

The soils in this WSA range from shallow to deep and were formed in a variety of parent materials. About one-third of the area has soils that formed over sandstone and shale. These soils are gently sloping, but have potential water erosion hazards due to the silty textures.



View from Red Hill Cinder Cone.

Another one-third of the WSA is characterized by soils that are shallow to deep over basalt flows, basalt-capped mesas, and rolling basalt hills and ridges. About 30 percent of this area is basalt rock outcrop. These soils are clayey and have many rock fragments. The potential erosion hazard is generally low in this area, especially with the protective rock fragments on the surface. The only erosion problems would occur on the steep side slopes.

The rest of the WSA has deep gravelly soils on moderately sloping hills and fans, deep loamy soils in swales, and a small area of soils formed in waterlaid volcanic ash southwest of the Zuni Salt Lake crater. The water erosion hazard in these areas is slight to moderate.

D. Vegetation

1. General

In the Mesita Blanca WSA, the following Standard Habitat Sites (SHS's) are present:

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Mesita Blanca WSA lies within the southern portion of the Colorado Plateau. Gently southeastward-dipping sediments of Cretaceous age, primarily the Mesaverde group and Mancos shale, dominate the surface of the WSA. Natural erosion of the sediments has produced mesas of low relief throughout the area. Quaternary basalt flows and a few related cinder cones (the most prominent being the Red Hill Cinder Cone) cap portions of the southern extension of the WSA.

Exploration wells drilled within the region provide evidence that Precambrian granite, Permian sediments, and Triassic sediments are present beneath the surficial deposits.

In general, sedimentary rocks, which originally covered exposed Precambrian granite, were regionally uplifted and eroded. These sediments were then partially covered with Tertiary volcanic sediments and intruded and capped by Quaternary basalts.

B. Water

The Mesita Blanca WSA is located in the Little Colorado River sub-basin. The principal stream system is Carrizo Creek, but neither it nor other minor drainages found in the Mesita Blanca WSA are perennial. Drainage ways are not deeply entrenched and are subject to flash floods following spring snow melt and heavy localized summer thundershowers. Flash floods generally are confined to tributaries and are dissipated in the main streams. Earthen type reservoirs, designed to catch and store runoff, normally contain water 6 months of the year. Quality data for the Little Colorado sub-basin are not available.

The source of all ground water in the Little Colorado sub-basin is precipitation. No ground water is known to enter the basin from outside areas. Most rock formations present will yield enough ground water locally to supply livestock needs. The alluvium of stream valleys and bolson fill are the most important ground water reservoirs in the WSA. There is a large volume of ground water available for development in the Little Colorado sub-basin, but is so distributed as to make recovery in large amounts uneconomical. In general, ground water from stream-valley alluvium and bolson deposits is of good quality and suitable for domestic and stock uses. Total dissolved solids average 250 parts per million (ppm), but can range up to 3,000 ppm. Ground water from intrusive and volcanic rocks is generally of good quality, but tends to be more highly mineralized. In the sedimentary rocks of Cambrian to Cretaceous age, ground water is usually highly mineralized.

C. Soils

The soils in this WSA range from shallow to deep and were formed in a variety of parent materials. About one-third of the area has soils that formed over sandstone and shale. These soils are gently sloping, but have potential water erosion hazards due to the silty textures.



View from Red Hill Cinder Cone.

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The rest of the WSA has deep gravelly soils on moderately sloping hills and fans, deep loamy soils in swales, and a small area of soils formed in waterlaid volcanic ash southwest of the Zuni Salt Lake crater. The water erosion hazard in these areas is slight to moderate.

D. Vegetation

1. General

In the Mesita Blanca WSA, the following Standard Habitat Sites (SHS's) are present:

MESITA BLANCA

Blue Grama-Snakeweed Hill (2,311 acres)

Found on rolling hills bordered by pinyon-juniper woodlands, this SHS includes blue grama, bottlebrush squirrel tail, broom snakeweed, and annual forbs. Also present are fringed sage, winterfat, galleta, dropseed, wolftail, oak, Apache plume, and scattered pinyon and juniper. The aspect is usually short and mid-grasses with scattered low shrubs. Animal species that are commonly found in this SHS include porcupines, striped skunks, mule deer, bobcats, coyotes, pronghorn antelope, turkey vultures, and golden eagles.

Alkali Sacaton-Russian Thistle Valley (11,316 acres)

This SHS is found in large, flat bottomlands bordered by pinyon-juniper hills, with annual forbs and grasses also present. Principal plant species include alkali sacaton, western wheatgrass, vine-mesquite, blue grama, galleta, spike muhly, bottlebrush squirrel tail, fourwing saltbush, rabbitbrush, winterfat, and annual and perennial forbs. The aspect is usually grassland with scattered shrubs. Animals commonly found in this SHS include pronghorn antelope, kit foxes, coyotes, striped skunks, and turkey vultures.

Pinyon-Juniper Hill (5,787 acres)

This SHS is found primarily on low hills next to mountains. Principal plant species include pinyon-juniper, snakeweed, blue grama, fringed sage, winterfat, bottlebrush squirrel tail, mountain mahogany, oak, rubber rabbitbrush, sideoats grama, New Mexico feathergrass, needle-and-thread, galleta, little bluestem, skunkbush sumac, and spineless horsebrush. North- and east-facing slopes usually have more pinyon, juniper, and shrubs, while south- and west-facing slopes contain more grasses and low-growing shrubs. Common animal species include coyotes, kit foxes, porcupines, striped skunks, mule deer, bobcats, turkey vultures, red-tailed hawks, and screech owls.

2. Rare Plant Species

No threatened or endangered plant species have been recorded from this WSA.

E. Wildlife

1. General

The Mesita Blanca WSA supports approximately 306 wildlife species. These include 57 reptile and amphibian species, 74 mammal species, and 175 resident and migratory bird species. A complete list of wildlife species occurring in the Mesita Blanca WSA is available for review at the Socorro Resource Area Office. A description of characteristic wildlife species present in the WSA is included in the Vegetation section above.

2. Threatened or Endangered Fauna Species

The WSA has been identified by the U.S. Fish and Wildlife Service as providing potential habitat for the black-footed ferret, a Federal endangered species. None have been recorded within the WSA.

F. Visual

The scenic quality of the majority of the WSA has been rated as Visual Resource Management (VRM) Class III with some areas of Class IV scenery. The higher Class III visual values are derived from the scenic qualities of the Red Hill Cinder Cone and the vertical sandstone and basalt mesas found in the southern and central parts of the WSA. The rolling, grass-covered hills in the northern portion of the WSA were assigned Class IV because of their low scenic quality and lack of visual sensitivity.

G. Cultural

Portions of the Mesita Blanca WSA were the subject of a Class II Cultural Resource Survey conducted by the University of Tulsa in 1979. This survey, which covered approximately 5,000 acres in the WSA, identified 53 sites which ranged from petroglyphs to rock shelters and villages. These sites represent human habitation from Archaic period to the homesteading era. Of the sites recorded by this survey, seven were considered worthy of nomination to the National Register of Historic Places.

H. Air

Generally, the quality of air within the Mesita Blanca WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

This situation could be altered in the future due to the presence of two coal-fired generating plants in Springerville and St. Johns, Arizona, approximately 30 miles west of the WSA. Air quality is affected at times in the spring, when gusty southwestern winds cause dust to blow.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resource potential of the lands within the WSA is shown on Table 3 and Map 22-2.

1. Energy Minerals

a. Oil and Gas

As of April 15, 1986, there were no oil and gas leases in the WSA.

Although no drilling has occurred within the WSA, three dry wells have been drilled locally since 1950. Any positive shows of oil and gas in the region could stimulate exploration attempts within the WSA. The oil and gas potential is considered low.

b. Coal

Private and government exploration in areas 15 to 20 miles northeast of the WSA have identified economic coal reserves within the Mesaverde group. Although the Mesaverde group occurs shallowly in much of the WSA, recent information indicates that the potential for economic coal deposits is low because, if present, the coal would occur in thin beds or at depth.

c. Uranium

Within the region, uranium mineralization is associated with the Baca formation and the Point Lookout sandstone of the Mesaverde group. Initial exploration adjacent to the WSA has identified uranium mineralization within the Baca formation. The wide spacing of the drill holes used to investigate the area's uranium potential could have left areas of more favorable uranium mineralization undetected. The WSA has a low potential for economic uranium deposits.

2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA.

a. Cinders

A New Mexico State Highway Department cinder pit has previously been active at the southeastern base of Red Hill Cinder Cone, which lies just outside of the WSA. The prominent Red Hill Cinder Cone, which is within the boundary of the WSA, is composed of excellent cinders and has good access. This deposit would be an excellent source of cinders. The potential is considered high. There are other areas in the WSA that have moderate potential because of poor access and remoteness from potential cinder markets.

MESITA BLANCA WSA (NM-020-018)
Proposed Action-No Wilderness Alternative

MAP 22-2
MINERAL RESOURCE POTENTIAL*

Legend

- WSA BOUNDARY
--- AMENDED BOUNDARY

Land Status

- BLM
P PRIVATE
S STATE
BLM SURFACE/NON BLM SUBSURFACE



Cinders

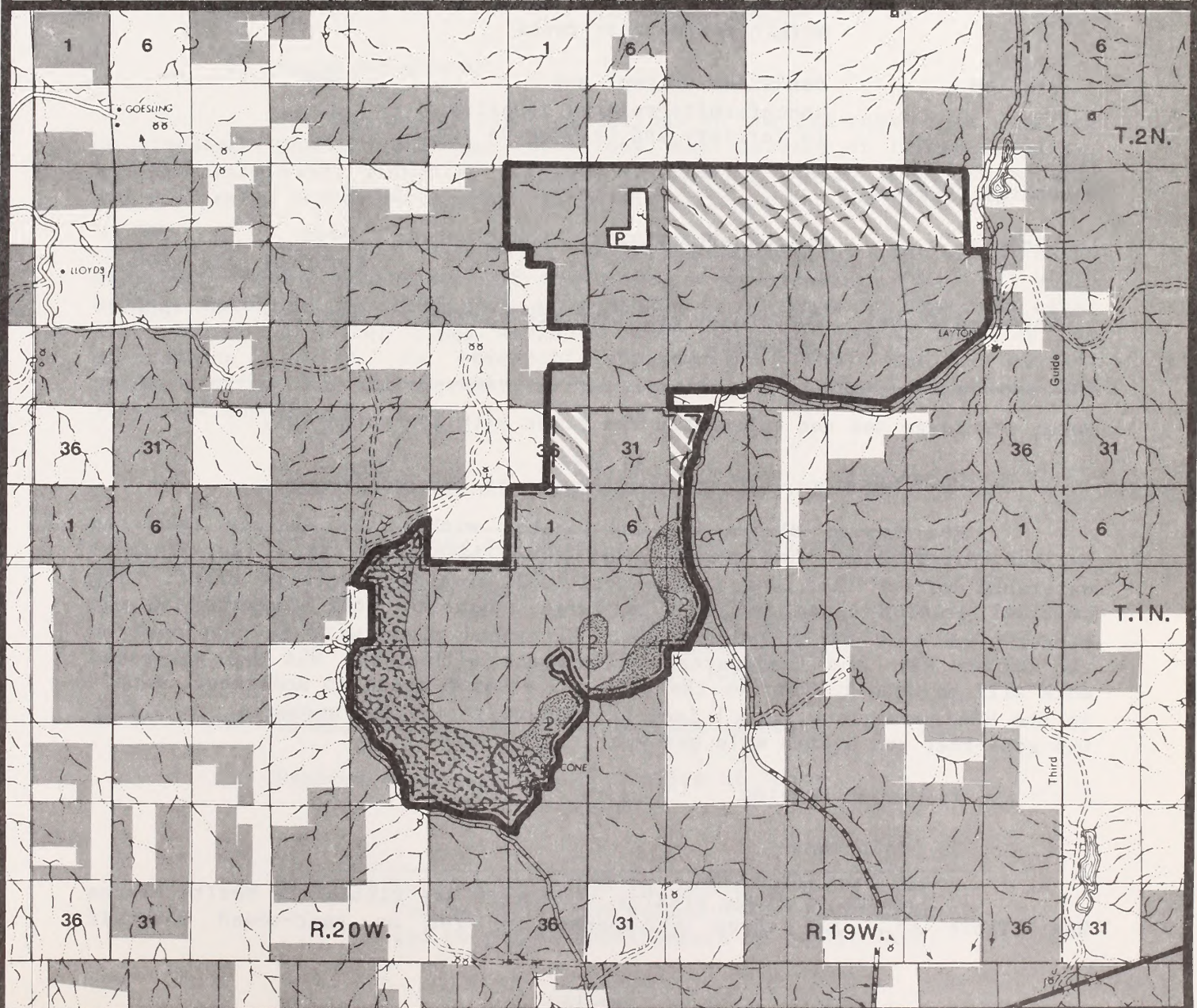


Sand and Gravel

* Areas of high (1) and moderate (2) mineral potential are shown for lands within the WSA except for split-estate land; the potential may extend onto the split-estate land and outside the WSA boundary. Areas of low potential are not shown.

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



b. Sand and Gravel

There is a moderate potential in the WSA for the development of sand and gravel resources in Quaternary and Tertiary fluvial sediments.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE MESITA BLANCA WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Paleozoic and Mesozoic continental and marine sedimentary rocks	Low	--
Coal	Mesaverde group continental margin sedimentary rocks	Low	--
Uranium	Sandstone channel and unconformity-related deposits in Tertiary and Cretaceous rocks	Low	--
Nonenergy Minerals			
Cinders	Quaternary basaltic cinder cones	High Moderate	300 2,000
Sand and Gravel	Quaternary and Tertiary fluvial sediments	Moderate	800

Note: *Acreage was not calculated for areas with low potential.

B. Watershed

The Mesita Blanca WSA is located within the Blaines Lake and Nations watersheds. Two small areas were identified from the Phase I watershed survey that are in the critical erosion condition class. The critical erosion class indicates a large amount of soil movement and the presence of many rills and gullies. Watershed plans will be developed on the Stokes Flat and Headquarters allotments within the WSA and watershed work will be done to improve the critical erosion areas to moderate. Runoff in the WSA averages 0.5 to 1 inch per year with erosion amounting to 0.2 to 0.5 acre-feet per square mile per year.

C. Livestock Grazing

1. Allotments

Parts of three grazing allotments are within the Mesita Blanca WSA (Table 4). All three allotments are run as year-round cow-calf

operations. The specific dates of grazing the WSA in relation to the total allotment depends on the availability of forage and the permittee's rangeland management and livestock management practices. The Rancho Allegre Cattle Company has an ongoing Allotment Management Plan (AMP) developed in cooperation with the BLM.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Rancho Allegre 0070	79,578	11,880	14,204	2,138	18%
Stokes Flat 0079	10,690	2,400	4,570	1,032	43%
Headquarters 0056	17,969	2,340	640	94	4%
TOTAL			19,414	3,264	

2. Ranch Management

The day-to-day ranch operations in the WSA consist of checking on livestock condition, forage conditions, availability of livestock water, supplementary salt, minerals, or protein, breaking ice on livestock waters, and performing normal maintenance on fences, dirt tanks, and pipelines.

Most of the daily ranch operations are performed using vehicles. Normal maintenance of the rangeland developments (Table 5) would utilize motorized vehicles such as a pickup truck or a bulldozer to clean dirt tanks. A pickup truck would be used to carry needed supplies for maintenance repairs, to transport supplemental feed, and to provide transportation for the permittee when checking on general rangeland and livestock conditions.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and No.	Type of Development
Rancho Allegre 0070	5½ miles of fence 7 miles of pipeline 5 drinking troughs 5 dirt tanks
Stokes Flat 0079	8 miles of fence
Headquarters 0056	3 miles of fence

Note: ^{a/}Information shown in tables reflects only
Federal acres and animal unit months (AUMs),
and rangeland developments on public land.

3. Potential Rangeland Developments

No specific rangeland developments have been planned for the WSA at this time. However, over the long-term, additional developments such as pipelines are anticipated.

D. Timber Harvest

The Mesita Blanca WSA is generally of an open character with scattered pinyon-juniper woodlands occurring on the ridges, mesa sides, and hilly areas. Most of these woodlands are of small size and volume, occurring in open stands on the steeper terrain of the area. There are approximately 4,000 cords of standing wood available in the WSA for such things as firewood and fence posts.

These pinyon-juniper stands offer only limited potential over approximately 5,000 acres as sources of firewood and fence posts because of their low volumes. This limited potential is reduced further by the location of most of the stands which are not easily accessible by vehicle.

E. Recreation

Existing recreational use in the WSA is low with most current use and potential for future use occurring at the 500-foot high Red Hill Cinder Cone and lava flow.

The WSA offers opportunities for rockhounding and geologic sightseeing. Some deer hunting also occurs, but low game populations (estimated .3 deer per section) limit hunter success. Light levels of off-road vehicle (ORV) use are also associated with these activities in the area.

F. Education/Research

The archaeological resources in the WSA have been the subject of research in the past and offer outstanding opportunities for future research uses.

Opportunities for environmental education in the WSA are derived from geologic features and cultural resources. However, the distance from population centers reduces the likelihood that this area will be used for environmental education by institutions.

G. Native American

There are no known Native American religious or cultural uses in the WSA. The Mesita Blanca WSA is located approximately 5 miles southwest of Zuni Salt Lake, an important Native American religious and cultural site.

H. Realty Actions

No applications for rights-of-way or easements have been received, nor is any public land withdrawn within the WSA.

I. Wildlife

No wildlife management actions are planned within the WSA at this time.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The apparent naturalness of the Mesita Blanca WSA is impacted primarily by rangeland developments and watershed control structures. These impacts are not typically screened by topography or vegetation and many are visible over a wide area in the WSA.

The Mesita Blanca WSA contains 10 livestock watering structures (dirt tanks and drinking troughs), 7 miles of buried pipeline, and 16½ miles of fences. Access to these rangeland developments is provided by approximately 21½ miles of vehicle ways.

Most human impacts in the Mesita Blanca WSA result from ranch operations. Some of the access routes would be closed and would return to a natural condition as a result of wilderness management. Other routes would continue to be used occasionally by the permittee to perform necessary maintenance of rangeland developments. These routes would continue to be visible, but would become less of an impact due to reduced use under wilderness management. Cinder development from a pit adjacent to the southwestern portion of the WSA has reduced the naturalness of this area.

The cumulative effects of the cinder development, rangeland developments, watershed structures, and the general lack of topographic and vegetative screening are considered to greatly reduce the level of perceived naturalness in the Mesita Blanca WSA.

b. Solitude

The size and configuration of the WSA would partially allow users to find secluded spots. Because of the open character of much of the WSA, opportunities for solitude would be highest in areas with some degree of topographic and vegetative screening. Those areas would be found in isolated locations primarily in portions of the lava flow from the Red Hill Cinder Cone and along the bases of the isolated mesas which occur in the WSA. The mesa tops and the Cinder Cone itself, because of greater visibility, would offer less chance of avoiding the evidence of human activities both inside and outside the WSA.

Outside sights and sounds affect the feeling of solitude in portions of the Mesita Blanca WSA. The WSA is bordered on two sides by county roads. A 345kv transmission line is located west of the WSA and is visible from higher points in the WSA as is a smaller transmission line, which is cherry-stemmed about ½-mile into the east side of the WSA. Large erosion control dams and an abandoned gravel pit along the eastern boundary also reduce the feeling of being alone. Solitude could further be reduced with future coal development north of the WSA due to increased human activity in the WSA.

c. Primitive and Unconfined Recreation

During the wilderness inventory, the Mesita Blanca WSA was not found to possess outstanding opportunities for primitive recreation. Opportunities for primitive or unconfined recreation were not considered outstanding in the WSA because the terrain in the WSA is common to the region and it lacks the visual interest of lands to the north and east. The opportunities for recreation that do exist in the WSA consist primarily of geologic sightseeing, hiking around the Red Hill Cinder Cone and lava flow, rockhounding, and some deer hunting. There is little known recreation use in the WSA other than around the Red Hill Cinder Cone.

2. Special Features

Archaeological resources in the WSA are considered significant. The WSA contains a high density of archaeological sites representing human habitation from archaic to historic times. Seven recorded sites in the WSA are considered eligible for nomination to the National Register of Historic Places.

The WSA also has geological special features. The 500-foot high Red Hill Cinder Cone is a dominant feature in the landscape of the region. It represents a classic volcanic cinder cone and lava flow. The lava flow covers approximately 2,000 acres and contains numerous interesting lava features.

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would the administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Mesita Blanca WSA as being within the Colorado Plateau Province with a potential natural vegetation of 5,787 acres of pinyon-juniper woodland and 13,627 acres of grama-galleta steppe.

b. Distance From Population Centers

The WSA is within 5 hours driving time from Albuquerque and 5½ hours driving time from Las Cruces, New Mexico.

B. Manageability

Several factors potentially affect the capability of the Mesita Blanca WSA to be managed as wilderness: boundary configuration, inholdings, and maintenance of rangeland developments.

An awkward boundary configuration and a lack of readily identifiable terrain features to delineate the boundary or to provide natural barriers to off-road vehicle travel would require fencing or a system of signs and cairns to delineate the boundaries of the wilderness area in order to reduce trespass problems.

At this time, private surface inholdings in the Mesita Blanca WSA would not pose serious problems for wilderness management. There is a 160-acre private inholding which could require reasonable access. This access could affect wilderness values and result in wilderness management problems.

The maintenance of grandfathered rangeland developments is not expected to create serious manageability problems, but would result in the continued existence of human impacts (rangeland developments) and reduced opportunities for solitude in portions of the WSA. The use of vehicles for ranch operations and maintenance of rangeland developments could be authorized if reasonable alternatives do not exist.

Approximately 2,985 acres of split-estate, non-Federally owned subsurface minerals is a manageability concern. Should development of these subsurface mineral resources occur, management to maintain wilderness values could not be ensured.

The Mesita Blanca WSA could be managed to preserve its low quality wilderness values over the long-term. Potential conflicts with wilderness management could occur should reasonable access be requested and allowed to either access private land or develop subsurface mineral resources.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 19,414 acres of public land within the Mesita Blanca WSA would be recommended suitable for wilderness designation. (See Map 22-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981).

1. Impacts on Wilderness Values

Wilderness management would preserve the natural character of the cinder cone, lava flow and sandstone and basalt mesas and would maintain the opportunities for solitude which exist in the WSA. The habitation sites from the Archaic period, geologic features associated with the volcanic activity, and vegetation present in the WSA would be protected in a natural environment for enjoyment and study by present and future generations. Restrictions on vehicle use would improve naturalness because the 21½ miles of vehicle ways would tend to revegetate making them less noticeable. Mesita Blanca would be managed to prevent uses that would destroy or degrade the naturalness of the area and outstanding opportunities for solitude.

Conclusion. In the long-term, wilderness designation would maintain and in some cases enhance the marginal wilderness values present in the area.

2. Impacts on Cinder Development

Approximately 2,300 acres in the southern portion of the WSA have moderate to high potential for mineral material including cinders (300 acres high potential and 2,000 acres moderate potential). The development of these areas and the extraction and sale of mineral material would be precluded after wilderness designation. This loss of mineral material would not be significant since the projected number of sales per year (3 to 6) is small. Impacts would be limited due to availability of cinders in other areas outside the WSA.

Conclusion: In the long-term, there would only be a slight to negligible impact to saleable minerals as cinders are available in other areas outside the WSA.

3. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 8 CYL per section (3,264 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include 16½ miles of fence, 7 miles of pipeline, and 5 dirt tanks. New rangeland facilities are not

planned. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy, with permits required when motorized vehicles or equipment are used. Minor repairs to fences would have to be accomplished on horseback.

If the region experiences a population increase as a result of coal development north of the WSA, the impacts to livestock operations from closing the area to unauthorized vehicle use would tend to reduce potential vandalism and harassment of livestock.

Conclusion: Restrictions on the use of vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. Amended Boundary

Under the Amended Boundary Alternative, 9,300 acres of public land (including 585 acres of State-owned subsurface minerals) within the Mesita Blanca WSA would be recommended suitable and 10,114 acres of public land (2,400 acres State-owned subsurface minerals) would be recommended unsuitable for wilderness designation.

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981). Areas not designated wilderness would not be subject to these constraints.

1. Impacts on Wilderness Values

The 9,300 acres within the amended boundary contain the highest wilderness values, including the cinder cone and lava flow formation and outstanding opportunities for solitude. The scenic, archaeological sites, geologic features, and vegetation present in the suitable area would be protected in a relatively natural environment for the enjoyment and study by present and future generations. Restrictions on vehicle use would tend to improve naturalness because the 11½ miles of vehicle ways would revegetate, making them less noticeable.

Wilderness values on the 10,114 acres recommended unsuitable would be lost over the long-term due to rangeland and watershed developments, motor vehicle use, woodcutting, and mineral exploration activities. A projected 5 miles of additional access roads would result from future exploration, development, and woodcutting. Approximately 75 percent of the area would be impacted by these activities.

Conclusion. Under the Amended Boundary Alternative, the long-term protection of Congressional designation would ensure wilderness resources in 40 percent of the area designated wilderness would be maintained in a natural condition. Wilderness values in 75 percent of the area recommended unsuitable would be degraded due to impacts resulting from rangeland and watershed developments, woodcutting, new access roads, and mineral exploration.

2. Impacts on Cinder Development

Approximately 2,300 acres in the southern portion of the WSA within the suitable area have moderate to high potential for mineral material including cinders (300 acres high potential and 2,000 acres moderate potential). The development of these areas and the extraction and sale of mineral material would be precluded after wilderness designation. This loss of mineral material would not be significant since the projected total number of sales per year (3 to 6) is small. Impacts would be limited due to availability of cinders in other areas outside the WSA.

Conclusion. Under the Amended Boundary Alternative, the opportunity to extract 2,300 acres of cinders would be foregone. However, this potential impact is lessened by the availability of cinders outside the boundaries of the WSA.

3. Impacts on Livestock Grazing Use Levels

The impacts on livestock operations inside the amended boundary would be the same as those described under the All Wilderness Alternative. However, the amended boundary would eliminate direct impacts on one livestock operation (Headquarters), and portions of two other operations (Rancho Alegre and Stokes Flat).

Under the Amended Boundary Alternative, one allotment would be completely excluded from the area recommended suitable for wilderness designation. Therefore, any impacts to this operation from wilderness designation would be eliminated. In addition, impacts to two other operations would be reduced since approximately 14 percent of the Stoke Flat and 60 percent of the Rancho Alegre allotments would be excluded by the amended boundary.

Conclusion. This alternative would create an inconvenience to the permittees on two allotments due to the requirement for permits to use motorized vehicles, but no impacts on existing livestock grazing use levels would occur. Impacts resulting from the requirement to get permits for vehicle use on one permittee would be completely eliminated as that allotment is in the area recommended nonsuitable.

C. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the entire 19,414 acres of public land within the Mesita Blanca WSA would be recommended nonsuitable for wilderness designation.

In the 19,414 acres not designated as wilderness, unavoidable adverse effects of the proposed action will result from future surface disturbance activities. Over the long-term, these activities would reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation, and special wilderness features. Also, cumulative short-term consumptive uses of this land would lead to long-term degradation of wilderness values. Nondesignation of 19,414 acres as wilderness would leave this acreage available for development of cinders and woodland products which could irreversibly

degrade wilderness values and foreclose the option of wilderness designation in the future.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III. The most probable uses of the area would be continued livestock grazing and a very small amount of woodcutting. Coal development is expected in the region but not within the WSA. Some cinder sales could occur.

1. Impacts on Wilderness Values

The natural character of the grasslands and cinder cone would not be provided with long-term Congressional protection.

Although the area would probably retain its naturalness and outstanding opportunities for solitude in the short-term, mineral material sales, vehicle use, new rangeland developments, and woodcutting would result in degradation of wilderness values in the long-term. Up to eight mineral material sales would occur each year resulting in approximately 25 acres of surface disturbance. In addition, up to 3 miles of existing vehicle ways would be upgraded to roads in support of the sales and an additional 5 miles of new roads would be created due to motorized recreation, woodcutting, mineral development, and access to rangeland projects. These surface disturbing activities would degrade 75 percent of the area's naturalness and opportunities for solitude. Potential increases in population due to possible coal development north of the WSA would tend to accelerate degradation of wilderness values from additional vehicle use.

Conclusion. The wilderness values within 75 percent of the Mesita Blanca WSA would be degraded and eventually lost over the long-term as a result of mineral material sales, increased vehicle use, new rangeland development, and woodcutting. The naturalness of the lava flow would not be affected because of the low development potential.

2. Impacts on Cinder Development

There would be no impacts on mineral material sales including cinder development under this alternative.

3. Impacts on Livestock Grazing Use Levels

Under this alternative, there would be no impacts to livestock grazing operations in the WSA. Grazing use levels are projected to remain the same and there would be no impacts to livestock grazing operations in the WSA.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This section was prepared after considering public input obtained from a variety of sources including mass mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the BLM New Mexico Statewide Wilderness Environmental Impact Statement (EIS).

Opposition to wilderness status for the Mesita Blanca WSA has centered around conflicts with mineral and livestock interests. A large number of Catron County residents have also expressed opposition to additional wilderness areas in Catron County. Reasons for opposition included the following: the lack of naturalness of the area due to rangeland developments; lack of wilderness values; conflicts with possible future mineral development; possible adverse impacts on future rangeland developments and livestock operations; and impacts of wilderness designation on future economic development of Catron County.

Support for wilderness designation has come from recreation, conservation, and preservation interests. Reasons cited include: under representation of landforms and grasslands in the WSA in the National Wilderness Preservation System; need to preserve raptor habitat; and existence of high cultural resource values. The lack of conflict between wilderness management and livestock operations and the lack of timber resources in the WSA were also noted.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 19 letters and 52 coupons were received.

Fifteen letters and the coupons expressed disagreement with the nonsuitable recommendation. Among the reasons cited in support of designation were: the need to include more grassland and mesa environments in the National Wilderness Preservation System; the benefits of wilderness to wildlife; the presence of important archaeological resources; and the high geologic value of the Red Hill Cinder Cone.

Four letters expressed agreement with the nonsuitable recommendation. The WSA was felt to be nonsuitable due in large part to the degree of human impacts and probable future impacts from mineral activities. It was also felt that the area lacked outstanding opportunities for solitude and primitive recreation.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Mesita Blanca WSA and recommended wilderness designation for the entire WSA. Ninety-one individuals commented

MESITA BLANCA

specifically on Mesita Blanca WSA and all 91 favored wilderness designation for the area.

During public scoping on the split-estate issue held in early 1986, 7 commentators specifically favored the addition of split-estate to the affected WSAs and 5 commentators opposed it.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Mesita Blanca WSA by 15 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The BLM is recommending the no wilderness alternative for Mesita Blanca WSA on the basis that the naturalness, solitude, and opportunities for primitive and unconfined recreation are of low quality and marginally meet the required criteria. The Coalition agrees with the assessment to some degree, but still feels that a portion of the area deserves wilderness designation to protect the special features associated with Red Hill Cinder Cone, the raptor nesting habitat, and the archaeological resources."

Response: The 11,369 acres recommended suitable for the Mesita Blanca WSA by the Coalition is essentially the same as the Amended Boundary Alternative previously analyzed in the Wilderness Analysis Report contained in the September 1986 New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (refer to pages 22-4, 22-5, 22-24, 22-25). It is the BLM's position that the entire Mesita Blanca WSA marginally meets the minimum criteria of wilderness and that the values that are present are better represented in other areas recommended suitable for wilderness designation within the Socorro Resource Area.

APPENDIX 23

PRESILLA WSA (NM-020-037)

I. GENERAL DESCRIPTION

A. Location

The Presilla Wilderness Study Area (WSA) is located east of the Rio Grande, about 2 miles east of Socorro, New Mexico.

The U.S. Geological Survey (USGS) topographic map covering the WSA is the Loma de las Canas, New Mexico quadrangle at the 7½-minute scale.

B. Climate and Topography

The Presilla WSA is characterized by a semiarid climate with clear and sunny days, large diurnal temperature ranges, low humidity, and scant rainfall.

The WSA is located within the Chihuahuan Desert. Maximum summer temperatures range from 90° to 100°F. Winter temperatures are generally mild during daylight hours, 40° to 50°F, and moderately cold at night, 15° to 30°F. Spring and fall temperatures tend to be mild. The spring season typically is accompanied by winds ranging from 10 to 40 mph.

Precipitation averages 10 inches per year. Over half the annual rainfall is received during the summer thundershower season (July through September). A third of the year's precipitation usually falls during the winter months (December through March). The remaining moisture, normally 10 percent or less, is received in the spring and fall months.

The western portion of the WSA contains mesa benchlands cut by large arroyos, while the eastern portion is dominated by rugged limestone and sandstone hills which, in places, form parallel ridges trending north-south. Low granitic ridges rise slightly above the surrounding terrain in T. 3 S., R. 1 E., Sections 11 and 14. There are also areas of coppice dunes and scenic box canyons. Elevation varies from 4,700 feet to 5,450 feet. Drainages include portions of Arroyo del Tajo, Arroyo de la Presilla, Arroyo de Tio Bartolo, and Arroyo Tinajas.

C. Land Status

The WSA contains approximately 8,680 acres of public land. There are no State or private inholdings. (See Map 23-1 for land status within the WSA boundary.)

Approximately 760 acres of the Presilla WSA are located within the White Sands Missile Range (WSMR) Safety Extension Area. This area was established by Cooperative Agreement between the United States Army and the BLM. The agreement requires periodic evacuation of the Extension Area due to its proximity to targeting locations within the Missile Range proper.

PRESILLA WSA (NM-020-037)

Proposed Action - No Wilderness Alternative

Legend

— WSA BOUNDARY

Land Status

■ BLM

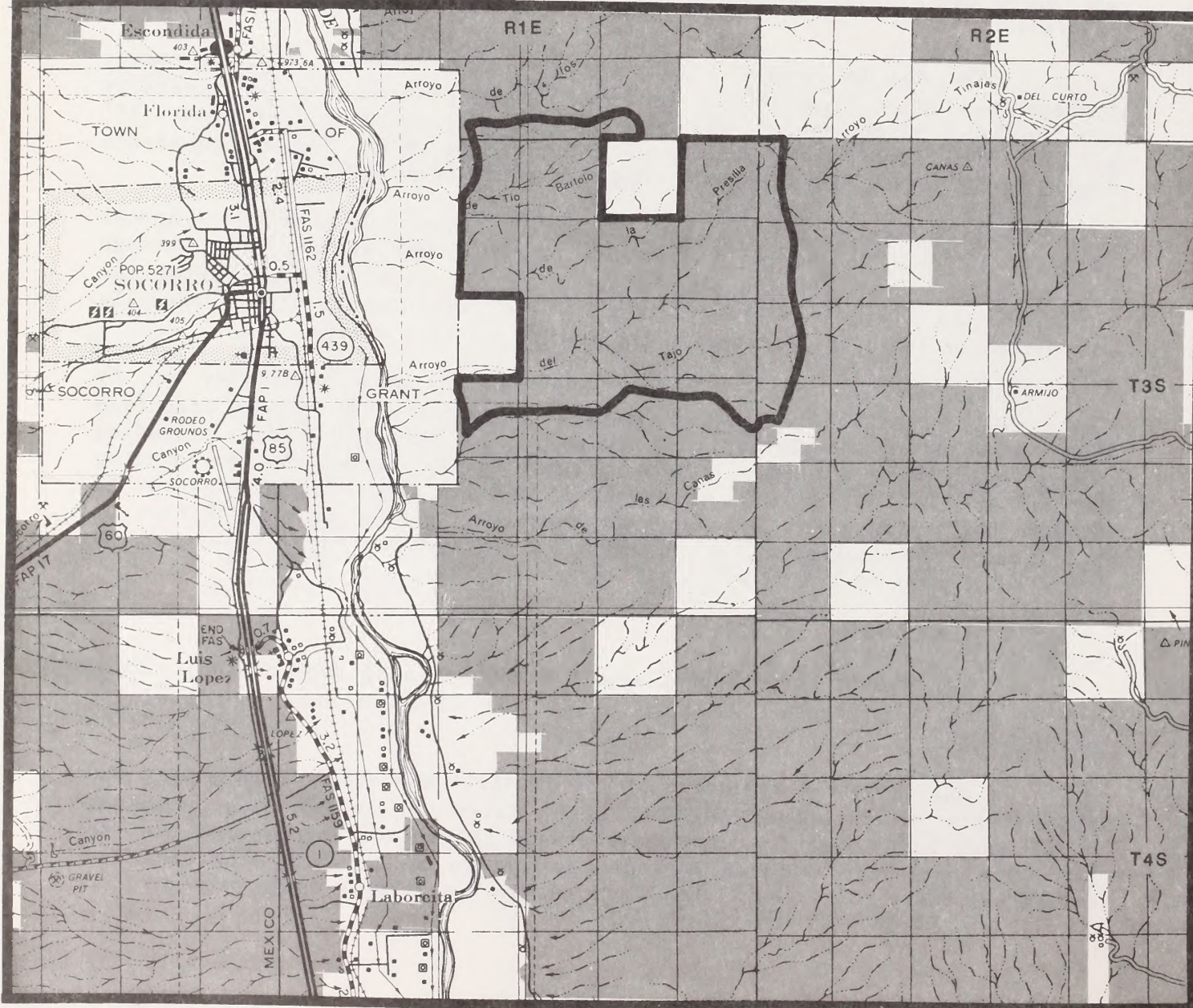
□ PRIVATE

□ STATE

Scale: 1/2 Inch=1 mile

MAP 23-1 LAND STATUS

Source: USDI, BLM, Las Cruces District, April, 1986.



D. Access

The Presilla WSA has excellent physical and legal access. The Quebradas road forms the eastern boundary of the WSA and the Wilson Hill road parallels the western boundary of the WSA. Roads also form the northern and southern boundaries of the WSA. In addition to these boundary roads, there are vehicle routes running throughout the WSA.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The No Wilderness Alternative is the proposed action for the Presilla WSA because the potential conflicts with minerals and wilderness values found within the WSA are better represented in other areas recommended suitable for wilderness designation in the Socorro Resource Area. The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
Alternate Designation — Area of Critical Environmental Concern for Cultural and Visual Resources	After consideration of this alternative, it was decided that it would be more appropriate to consider the scenic resources of a larger area along the eastside of the Rio Grande Valley in the ongoing land use plan and expand the existing ACEC, rather than restricting consideration of visual resources to this WSA.

Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
Impacts on Cultural Resources	Cultural resources were not selected for detailed analysis because the major known site, a pictograph site, is currently protected from resource development through an ACEC designation. In addition, a detailed site-analysis would be required for all other areas if resource development activities are proposed.
Impacts on White Sands Missile Range	This is not an environmental impact topic. It is a manageability concern addressed in the manageability section, IV, B.

Alternatives Selected for Detailed Analysis	Reasons
All Wilderness	8,680 acres were identified through an Interior Board of Land Appeals Decision as having wilderness values.
No Wilderness (Proposed Action)	The No Action Alternative required by NEPA.

Environmental Issues Selected for Detailed Analysis

The primary issues identified for this WSA are impacts on the quality of the area's wilderness values including the area's special features, and impacts on exploration and development of Geothermal, Uranium, barite, fluorspar, lead, zinc, copper, and sand and gravel.

The minerals issue is analyzed because of the Presilla WSA's moderate potential for geothermal, uranium, barite, fluorspar, lead, zinc, and copper.

Concerns regarding livestock grazing use levels include the inconvenience to livestock operators from vehicle restrictions under wilderness designation, as well as an expected increase in vandalism if it is not designated wilderness.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	No Wilderness (Proposed Action)
<p>°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 8,680 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <ul style="list-style-type: none"> -Close 10 miles of ways which currently receive low use (less than 150 vehicles per year). This vehicle use is primarily recreational. -Current livestock grazing use levels of approximately 5 head per section per year would continue over the long-term. -Require permits for vehicle access to 10 miles of fence. Casual vehicle use for fence inspections and minor repairs would be precluded. Vehicle use would be permitted only for major fence repair. -8,680 acres would be closed to energy minerals leasing. -8,680 acres would be closed to mining claim location. -Reasonable access would be granted to WSMR personnel to recover missile debris which might impact in the area. -Existing interpretive signs and visitor register at the Arroyo del Tajo pictograph site would be relocated outside the designated wilderness. -BLM would not pursue an administrative withdrawal for minerals on 200 acres within the Tinajas ACEC. The entire area would be Congressionally withdrawn from mineral entry. 	<p>°MANAGE 8,680 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <ul style="list-style-type: none"> -Vehicle use would be allowed to continue on 10 miles of existing ways. Because of mineral exploration and development over the long-term, an additional 5 to 10 miles of vehicle ways are projected for the central and western portions of the WSA. Total vehicle use is estimated at less than 250 vehicles per year over the long-term. -Current livestock grazing use levels of approximately 5 head per section per year would continue with additional rangeland developments (such as fences) constructed in the long-term. -Vehicle access restrictions for maintenance of rangeland developments would not apply. -8,680 acres would be open to mineral exploration including mineral leasing, mining claim location, and mineral material sales. This includes 8,680 acres of moderate potential for geothermal, 5,500 acres of moderate potential for uranium, 5,000 acres of moderate potential for barite, fluorspar, and metallic minerals, and 1,200 acres of moderate potential for sand and gravel. Geothermal exploration in areas of moderate potential could result in 5 to 15 temperature gradient holes and low level development of 2 producing wells for direct use applications. Uranium exploration and low level development could result in 20 to 40 drill holes in areas of moderate potential. Exploration and low level development of barite, fluorspar, and metallic could result in 10 to 20 drill holes in areas of moderate potential. Mineral exploration could result in a total of 40 to 85 acres of surface disturbance and 5-10 miles of new access roads. Low level development of sand and gravel could result in 1 to 3 sales per year and annual surface disturbance of 1 to 2 acres. -Access would be granted to WSMR personnel to recover missile debris which might impact in the area. Access within the Tinajas ACEC would be closely monitored. -Interpretive signs and visitor register at Arroyo del Tajo pictograph site would remain in place. -BLM would pursue an administrative withdrawal for minerals on 200 acres within the Tinajas ACEC.

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues	
	Impacts On Wilderness Values	Impacts on Exploration & Development of Uranium, Barite, Fluorspar, Lead Zinc, Sand and Gravel
All Wilderness (8,680 acres)	The natural character of the mesa bench-lands and limestone hills as well as the opportunities for solitude, day hiking, photography, and viewing pictographs would be maintained.	The opportunity to fully explore and develop the following areas would be foregone. These include 5,500 acres for uranium; 4,300 acres for barite, fluorspar, lead, and zinc; 700 acres for copper; and 1,200 acres of sand and gravel.
No Wilderness (8,680 acres)	In the long-term, naturalness, opportunities for day hiking, photography, and viewing pictographs would be maintained on the 1,280-acre ACEC. Naturalness in the remainder of the Presilla WSA, 86 percent of the area, would be lost by mineral exploration. Up to 10 miles of new roads would be constructed. Up to 75 drill holes throughout the WSA would result in approximately 85 acres of surface disturbance. Mineral material sales would result in another 15 acres of disturbance. The additional surface disturbance and increased road network would further degrade the area's existing naturalness. Increased vehicle use on new roads and trails would degrade the area's outstanding opportunities for solitude. Approximately 90 percent of the area's naturalness would be degraded over the long-term due to surface disturbing activities described above.	No significant impacts.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Presilla WSA is situated within the Basin and Range physiographic province. Specifically, it is located in the Socorro trough, a faulted, tectonic depression filled with unconsolidated sediments. The WSA is also situated within the Rio Grande rift, a tensional feature in the earth's crust, which extends from southern Colorado to the El Paso, Texas vicinity. Records of past earthquakes and pediment surfaces offset by fault scarps indicate that tectonic forces are still active within the rift. The Socorro vicinity is especially seismically active.

The western portion of the WSA contains late Tertiary valley-fill sediments of the Santa Fe formation and Quaternary alluvium. The eastern portion of the WSA contains outcrops of Pennsylvanian age Madera limestone and several exposures of Precambrian granite.

B. Water

The Presilla WSA is located within the Rio Grande Basin. Surface water drainage is integrated with the Rio Grande by means of a system of ephemeral arroyos. Surface flows occur immediately after rainfall, usually as a result of summer thundershowers. Flow periods are short and may be widely spaced in time due to sporadic rainfall patterns. Major drainages in the WSA include portions of Arroyo de la Presilla, Arroyo Tinajas, and Arroyo del Tajo.

Portions of four watersheds are within the Presilla WSA. In general, the area is classified in the slight sediment yield class and in the moderate erosion class. Sheet and gully erosion occur following summer thundershowers and all four watersheds contribute some sediment to the Rio Grande.

Major underground aquifers in the WSA are Pennsylvanian age Madera limestone, Tertiary age Santa Fe formation, and Quaternary age alluvium. Water quality was analyzed from Pueblito Well which is on the southern boundary of the WSA, and is considered representative of the WSA. The analysis indicates a high dissolved solids content due to mineralization. Ground water quality is within the recommended limits for livestock and wildlife use.

C. Soils

Gravelly soils on steep slopes cover most of the WSA. Limestone rock outcrop and some basalt is common on steep slopes. Soil depths range from shallow to deep and textures are predominantly gravelly to extremely gravelly sandy loams and loams. All of the soils in the WSA are calcareous in the substratum and some have an indurated caliche layer. There is a small area of deep sandy soils on the gentler slopes between Arroyo del Tajo and Arroyo de la Presilla along the western boundary.

PRESILLA

D. Vegetation

1. General

The vegetation and associated range sites within the Presilla WSA consist of three major types:

<u>Vegetation Type</u>	<u>Range Site</u>	<u>Federal Acres</u>
Creosote	Gravelly, Limestone hills, Igneous hills	7,403
Desert shrub	Sandy	1,261
Pinyon-juniper	Limestone hills	16

The creosote type is the most prevalent in the WSA and contains other shrubs such as snakeweed, Mormon tea, and mesquite. Common grasses include fluffgrass, black grama, threeawns, dropseeds, bush muhly, and galleta. Annuals are an important part of this type and include annual snakeweed, common bahia, buckwheats, spectaclepod, sixweeks grama, sixweeks threeawn, and windmill grass.

The desert shrub type in the WSA is dominated by broom dalea and occurs on coppice dunes and deep sandy soil. Other shrubs are mesquite, snakeweed, sand sage, littleleaf sumac, and winterfat. Common grasses include fluffgrass and dropseeds.

Pinyon-juniper is found on a small area in the southeast part of the WSA, with one-seed juniper being the most common tree. Shrubs include snakeweed, rabbitbrush, squawbush, brickelbush, and Apacheplume. The common grasses are fluffgrass and slim tridens.

2. Rare Plant Species

Spellenberg (1977) and the New Mexico State Heritage Program (1983) do not list any threatened, endangered, or State-listed plant species in the WSA.

E. Wildlife

The WSA supports approximately 213 wildlife species including 27 mammal species, 41 reptile and amphibian species, and 145 resident and migratory bird species. Great horned owls have been observed roosting in canyon walls in Arroyo del Tajo. Other raptors, including red-tailed hawks, prairie falcons, and Cooper's hawks, populate the area. Doves, scaled quail, and various songbirds can also be seen. Tinajas (natural sinkholes in the dry arroyo bottoms) provide water on an intermittent basis, thus creating important microhabitats which attract and concentrate many species. Arroyos with abundant shrubs offer good habitat conditions for wildlife. Mammals which can be found in this locale include woodrats, jackrabbits, rock squirrels, gray fox, and mule deer. Rattlesnakes, side blotched and collared lizards, and coachwhip snakes are also present.

The Presilla WSA contains two major Standard Habitat Sites (SHS's). These SHS's are described briefly below.

1. Creosote Hill

The principal areas in the creosote hill SHS are the rolling upland hills east of the Rio Grande. Ground cover is sparse where creosote occurs in thick stands. This area has many arroyos that run toward the river. The arroyo bottoms have thick stands of Apacheplume and littleleaf sumac with creosote on the south-facing slopes and black grama on the north-facing sides. Some of the arroyos are several hundred meters across. The most diversity in plants and animals occurs in the arroyo bottoms, with little species diversity between the arroyos where creosote is the dominant plant. The most common wildlife species within this SHS are coyotes, black-tailed jackrabbits, and desert cottontails.

2. Mesquite Rolling Upland

The mesquite rolling upland SHS is a narrow band of vegetation that begins at the foothills heading east from the Rio Grande. It divides the riparian vegetation along the river from the creosote hills. It provides good cover for many species. This area is often very hot in the summer, lacking the breezes found in the hills and the humidity from the river. Ground cover is sparse and erosion is quite evident as some of the mesquite clumps are several feet higher than the surface in between. The most common wildlife species within this SHS are coyotes, black-tailed jackrabbits, desert cottontails, a few mule deer, and various songbirds.

3. Rare Plant Species

There are no rare plant species identified in or near the WSA.

F. Visual

The Presilla WSA is characterized by rolling benchlands which rise above the Rio Grande floodplain in the west and rugged north-south trending ridges of alternating bands of red sandstone and white limestone in the eastern portion of the area. These landforms have been cut by numerous drainages, producing a diverse visual landscape. The Arroyo del Tajo, Arroyo de Tio Bartolo, and Presilla Boxes are localized areas of outstanding visual quality characterized by various erosional features, including water-sculpted limestone and granite walls.

High points in the WSA offer vistas of the Rio Grande Valley and the Magdalena Mountains to the west and the Sierra de las Canas to the east. The entire WSA is within a Visual Resource Management (VRM) Class IV area. A reclassification is currently in progress which will upgrade the VRM Class to Class II and III areas.



West end of the Arroyo del Tajo Box.

G. Cultural

The WSA contains seven known cultural sites ranging from small structures of unknown function and date, an archaic lithic scatter, and a quarry, to a unique pictograph site relating to a Piro ceremonial site.

Previous BLM and private work in the area indicate that more than 1 mile from the river, the site density falls off, and those sites that do exist are usually associated with water sources or sand dunes.

A site of major significance in the WSA is the Arroyo del Tajo pictographs. They consist of over 75 figures painted in a shallow rock shelter on the north side of the arroyo. The figures represent a series of events by using various pueblo religious figures and symbols. They were most likely painted by Piro Indians, a group that inhabited over 20 settlements along the Rio Grande before their abandonment after the Pueblo Revolt of 1680. A pictograph site representing a series of events is virtually unique in the Southwest.

H. Air

The quality of air within the Presilla WSA is generally good. The air quality in the WSA does not exceed State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May) when west-prevailing winds, commonly gusting in excess of 30 mph, result in dust storms.

PRESILLA

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resources potential of the lands within the WSA is shown on Map 23-2, Map 23-3, and Table 3 below. The locations of mining claims and lands under mineral leases are shown on Map 23-4.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE PRESILLA WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Mesozoic (?) and Paleozoic continental and marine sedimentary rocks	Low	--
Geothermal	Active igneous intrusions along the Rio Grande rift	Moderate	8,680
Uranium	Veins and fractures in Precambrian granite and stratabound deposits in the Santa Fe formation	Moderate	5,500
Nonenergy Minerals			
Barite, Fluorspar ^{a/} , Lead ^{a/} , Zinc ^{a/}	Vein and replacement deposits in Precambrian and Paleozoic rocks	Moderate	4,300
Copper ^{a/}	Stratabound deposits in the Pennsylvanian Moya formation	Moderate	700
Sand and Gravel	Quaternary alluvium and Santa Fe formation basin fill deposits	Moderate	1,200

Notes: *Acreage was not calculated for areas with low potential.

^{a/}Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

1. Energy Minerals

a. Oil and Gas

As of April 15, 1986, there were no mineral leases in the WSA.

No exploration activities have occurred in the WSA. The nearest oil and gas test wells are north of the WSA in T. 1 S., R. 1 E., Sections 13 and 26. The wells were abandoned at depths of 800 and 860 feet with no reported shows of oil or gas.

The potential for discovery of oil and gas in the WSA is low. Heat and faulting associated with the Rio Grande rift have probably prevented the accumulation and entrapment of petroleum. A special stipulation is attached to 200 acres in T. 3 S., R. 1 E., Section 14 to protect the cultural values in an Area of Critical Environmental Concern (ACEC), the Tinajas Natural Area.

b. Geothermal

In the Socorro area, the presence of hot springs, high heat flow, steep geothermal gradients, and geophysical evidence of shallow magma chambers indicate that a heat source underlies the area which may extend eastward under the WSA. The potential for the occurrence of a low temperature heat source which could provide heat for direct-use applications is moderate.

c. Uranium

Uranium mineralization occurs in veins and fractures in granite outcrops in the eastern portion of the WSA. Higher than normal radioactivity and anomalous geochemical values also occur in the granite. Geochemical uranium values are 5 to 200 times the value for normal granite, while radioactivity is 3 to 24 times normal background radiation. The potential for discovery of a uranium ore deposit is moderate.

2. Nonenergy Minerals

As of April 15, 1986, there were two post-FLPMA mining claims recorded with BLM in the WSA.

a. Fluorspar, Barite, Lead, Zinc

There are two known fluorspar deposits in or near the WSA: the Gonzales prospect in T. 3 S., R. 1 E., Section 2 and the La Bonita prospect in T. 3 S., R. 1 E., Section 12. Fluorspar and barite with minor amounts of lead and zinc occur along faults and fractures in Precambrian granite and in the Madera limestone. These deposits are small and appear to have low to moderate potential for discovery of economic deposits.

b. Copper

Copper mineralization occurs about 1½ miles north of the WSA in T. 2 S., R. 1 E., Section 26 at Minas del Chupadero. The mineralization occurs as irregular stratabound deposits in sandstones in the Pennsylvanian Moya formation. The potential appears to be moderate because deposits of this type could extend into the extreme eastern portion of the WSA.

PRESILLA

III. EXISTING AND POTENTIAL USES

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2. Nonenergy Minerals

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b. Copper

Copper mineralization occurs about 1½ miles north of the WSA in T. 2 S., R. 1 E., Section 26 at Minas del Chupadero. The mineralization occurs as irregular stratabound deposits in sandstones in the Pennsylvanian Moya formation. The potential appears to be moderate because deposits of this type could extend into the extreme eastern portion of the WSA.

PRESILLA WSA (NM-020-037)


Proposed Action - No Wilderness Alternative

MAP 23-2 ENERGY MINERAL RESOURCE POTENTIAL *

Legend

— WSA BOUNDARY

 Geothermal

 Uranium

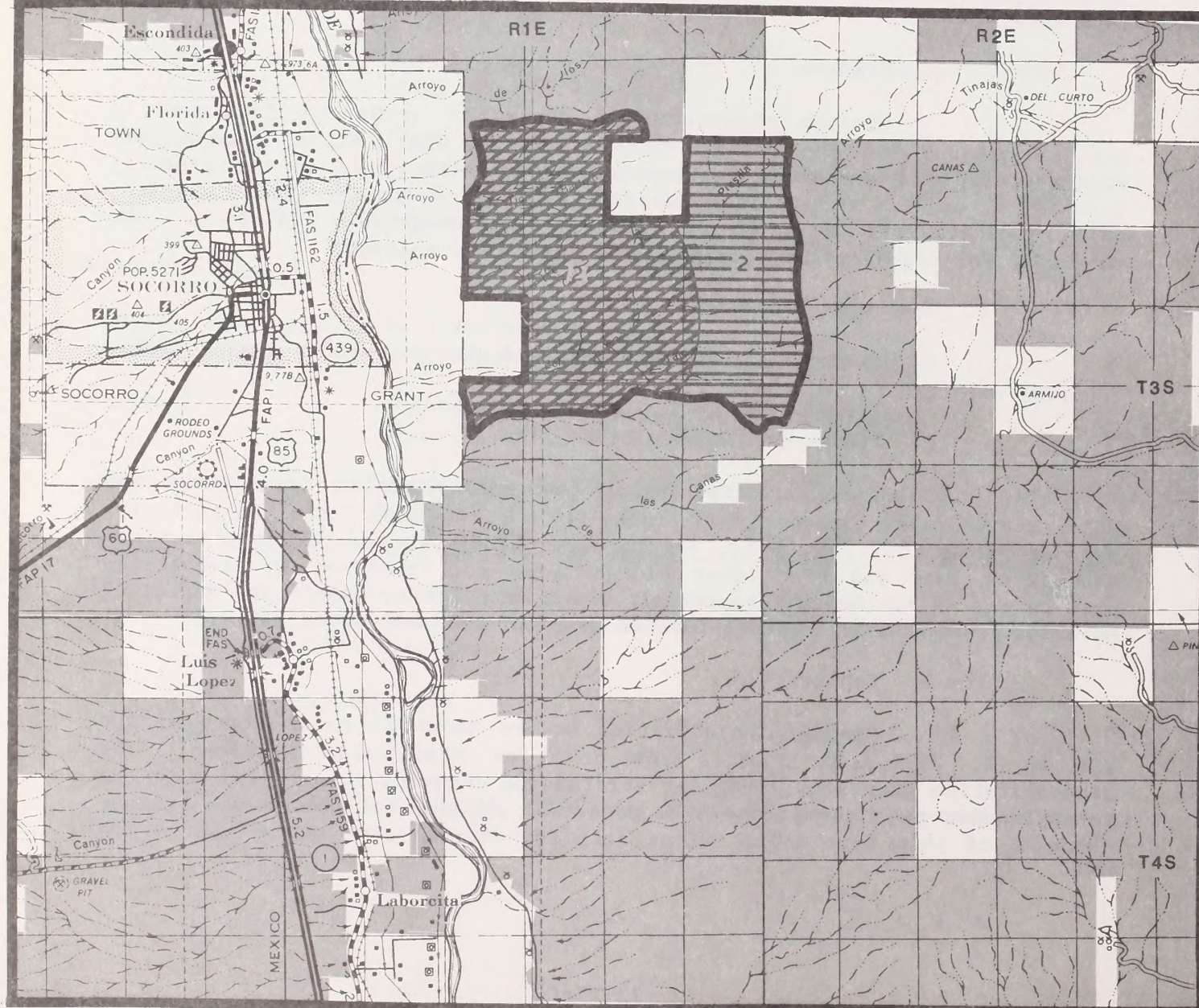
Land Status

 BLM
 PRIVATE
 STATE

Scale: 1/2 inch = 1 mile

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Source: USDI, BLM, Las Cruces District, April, 1986.



PRESILLA WSA (NM-020-037)

Proposed Action - No Wilderness Alternative

MAP 23-3 NONENERGY MINERAL RESOURCE POTENTIAL *

Legend

— WSA BOUNDARY

Land Status

BLM

PRIVATE

STATE



Sand and Gravel



Copper

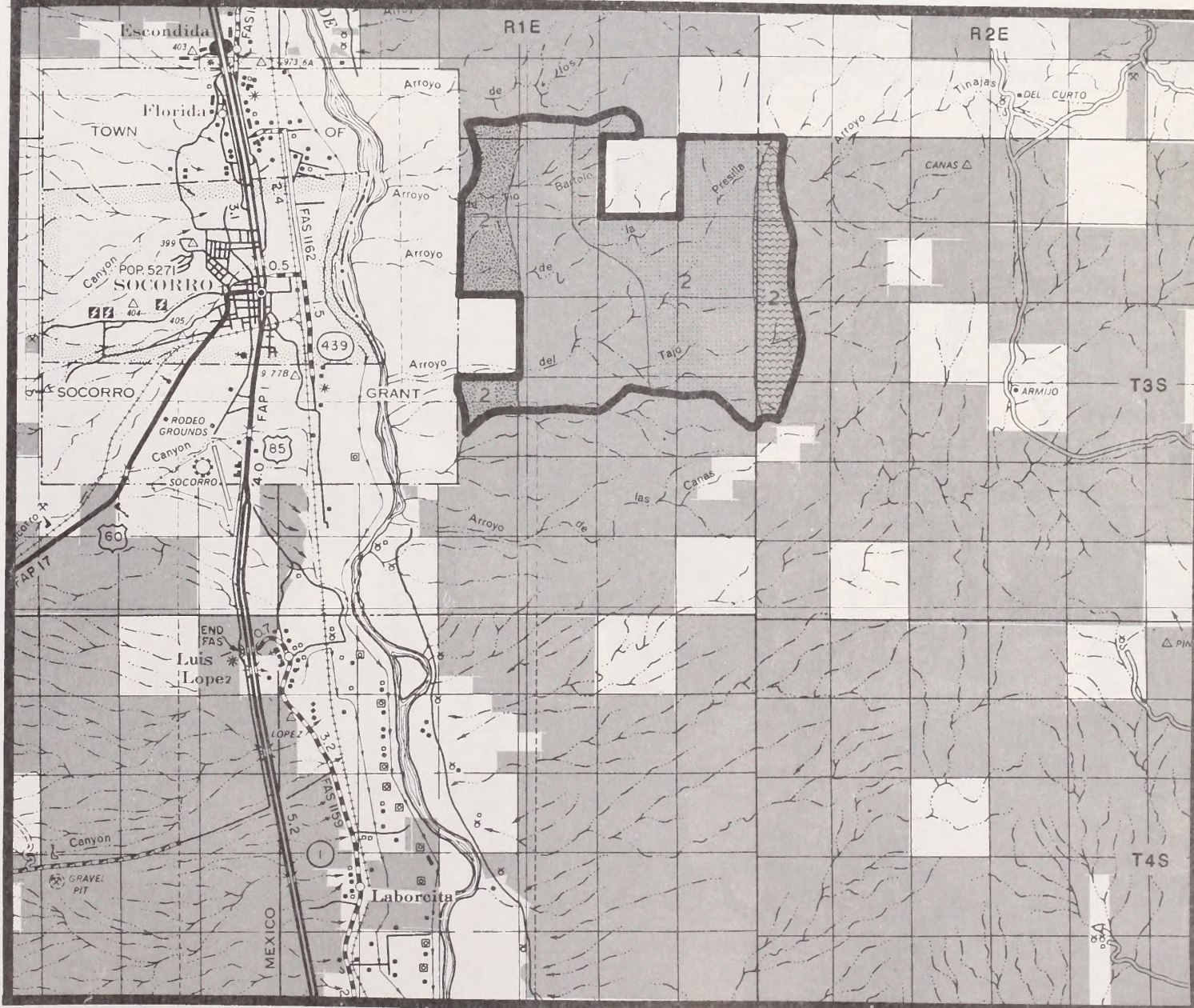


Fluorspar, Barite, Lead and Zinc

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



PRESILLA WSA (NM-020-037)


Proposed Action - No Wilderness Alternative

MAP 23-2 ENERGY MINERAL RESOURCE POTENTIAL *

Legend

— WSA BOUNDARY


 Geothermal

 Uranium

Land Status

 BLM

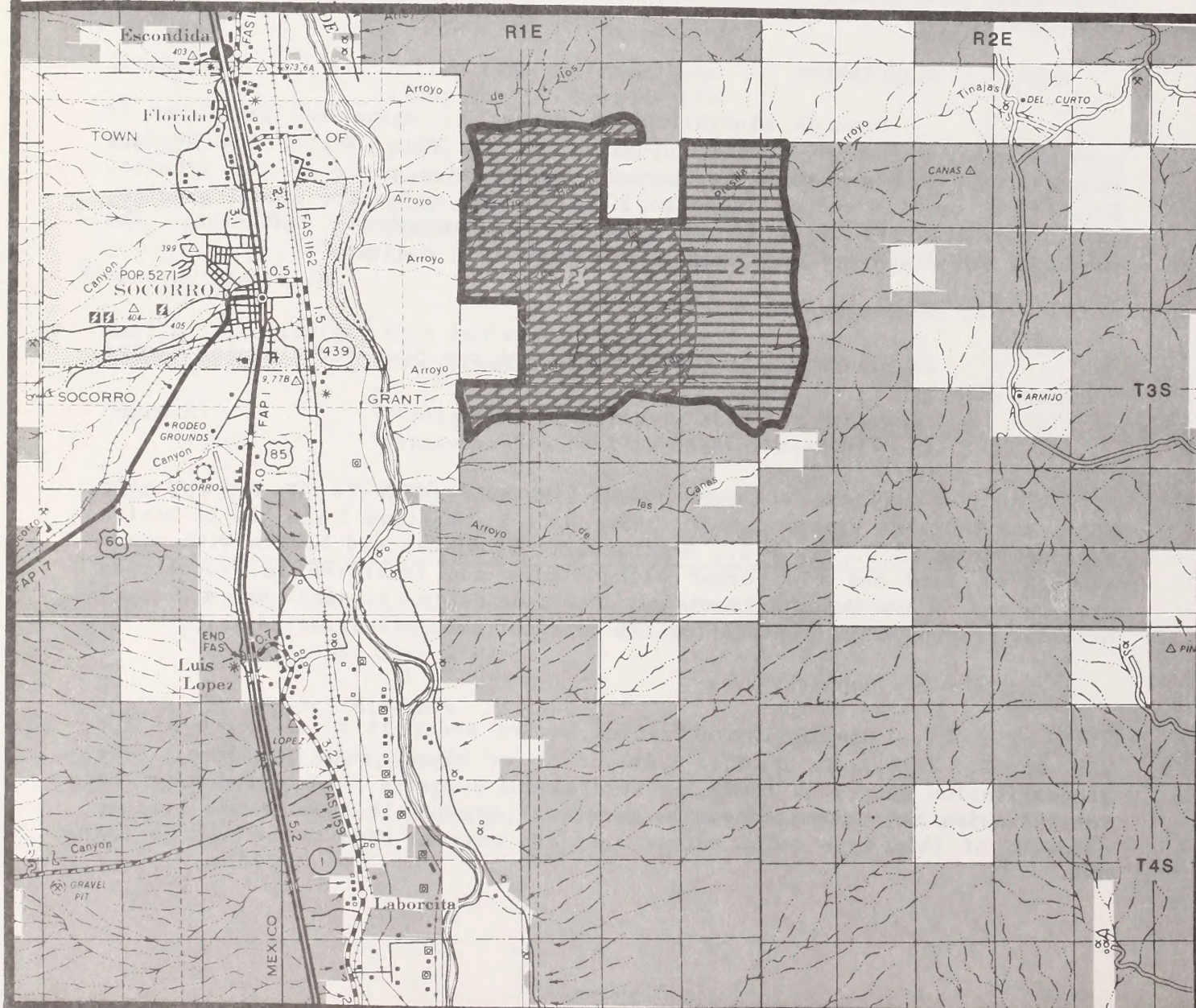
 PRIVATE

 STATE

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Scale: 1/2 inch = 1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



PRESILLA WSA (NM-020-037)

Proposed Action - No Wilderness Alternative

MAP 23-3 NONENERGY MINERAL RESOURCE POTENTIAL *

Legend

— WSA BOUNDARY

Land Status

BLM

P PRIVATE

S STATE

Sand and Gravel

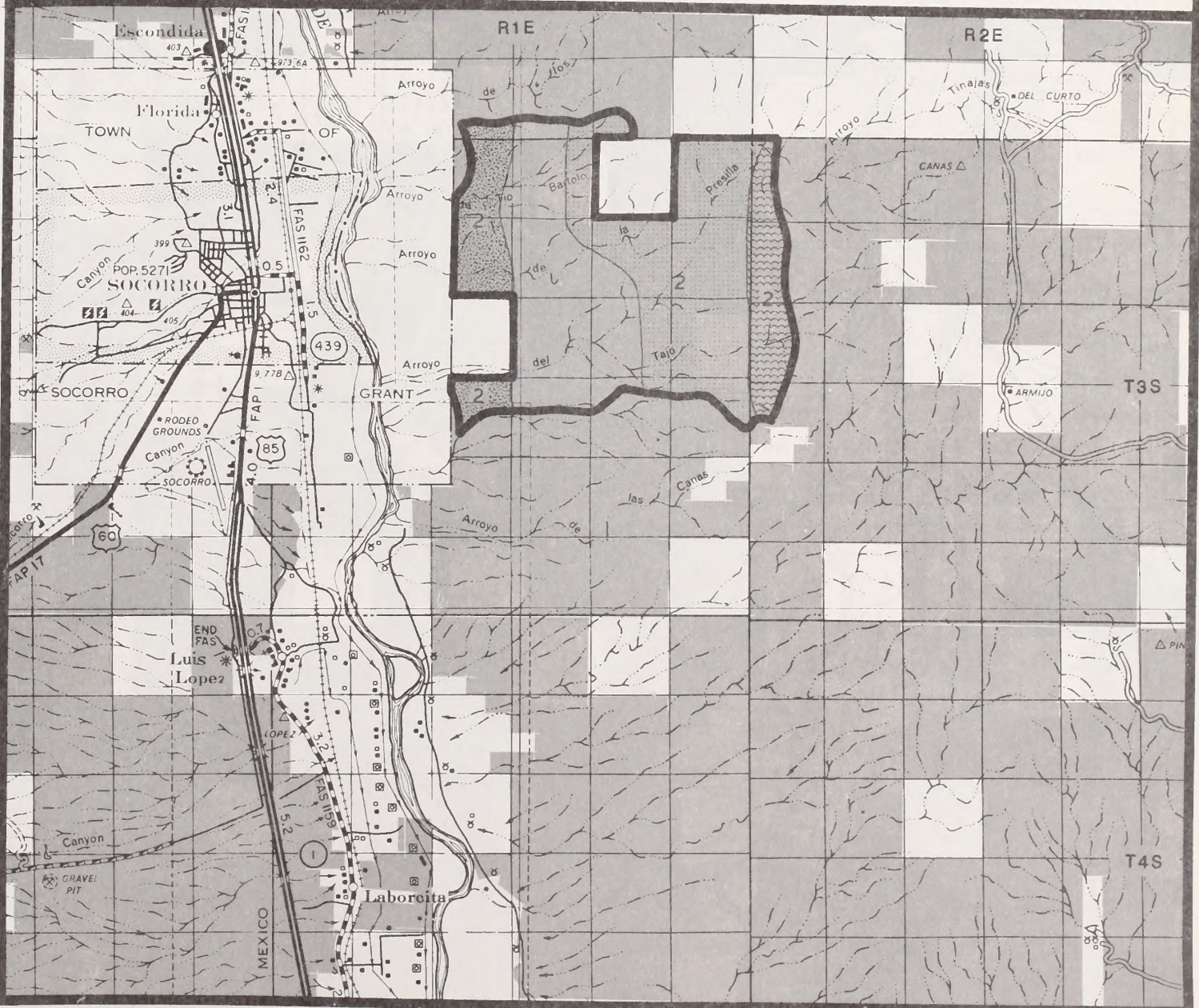
Copper

Fluorspar, Barite, Lead and Zinc

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.



PRESILLA WSA (NM-020-037)

Proposed Action - No Wilderness Alternative

MAP 23-4 MINING CLAIMS AND MINERAL LEASES*

Legend

— WSA BOUNDARY

Land Status

■ BLM

□ PRIVATE

□ STATE

Scale: 1/2 inch = 1 mile

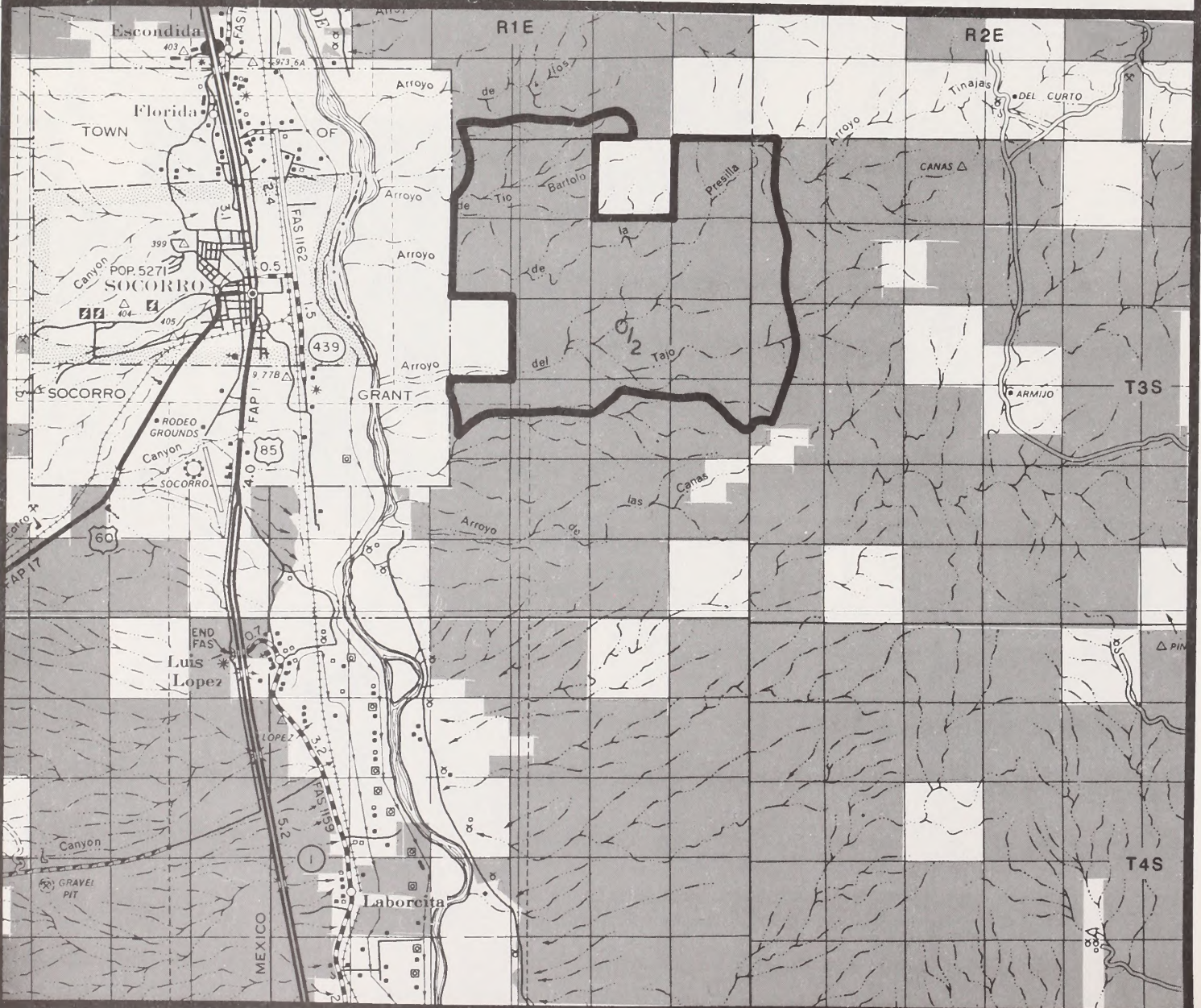
0/2 Pre-FLPMA Mining Claims per Section
2 Post-FLPMA Mining Claims per Section

(Claim information from BLM records dated April 15, 1986; claims which overlap more than one section are counted in each section in which they occur.)

FLPMA was passed October 21, 1976.

*No mineral leases exist in the WSA as of BLM records dated April 15, 1986.

Source: USDI, BLM, Las Cruces District, April, 1986.



c. Sand and Gravel

Sand and gravel occur in the Santa Fe formation and in Quaternary alluvium within the western portion of the WSA. The WSA has moderate potential for the development of these resources.

B. Livestock Grazing

1. Allotments

All of one and parts of four grazing allotments are within the boundary of the Presilla WSA (see Table 4 below). Licensed grazing use on public land includes cattle and a few horses.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Tio Bartolo 1258	4,806	365	4,806	365	100%
Four Hills 1259	6,132	360	406	25	7%
Las Canas 1262	12,312	1,560	941	125	8%
Rio Grande 1288	4,405	315	916	66	21%
Arroyo del Tajo 1287	4,320	264	1,611	98	37%
TOTAL			8,680	679	

Note: ^{a/}Information shown in table reflects only Federal acres and animal unit months (AUMs).

2. Ranch Management

Ways in the WSA are used by permittees to check the condition of livestock and to deliver salt and minerals to livestock. There are no rangeland developments in the WSA which require motorized access for maintenance. Fence repairs could be done without the use of motor vehicles unless major repairs were required.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development	Description
Four Hills Allotment (1259)	Interior Fence	$\frac{1}{4}$ mile
Four Hills (1259) and Tio Bartolo (1258)	Boundary Fence	2 $\frac{3}{5}$ miles
Tio Bartolo (1258) and Las Canas (1262)	Boundary Fence	1/10 mile
Tio Bartolo (1258) and Arroyo del Tajo (1287)	Boundary Fence	1/5 mile
Tio Bartolo (1258) and Rio Grande (1288)	Boundary Fence	1 $\frac{7}{10}$ miles
Arroyo del Tajo (1287) and Las Canas (1262)	Boundary Fence	2 $\frac{3}{10}$ miles
Arroyo del Tajo (1287) and Rio Grande (1288)	Boundary Fence	2/5 mile

3. Potential Rangeland Developments

No rangeland developments have been proposed for the WSA at this time. However, additional fences and water developments are projected over the long-term.

C. Recreation

The Presilla WSA lies 2 miles east of the City of Socorro and has excellent public access. This excellent access and the presence of interesting landforms including sand dunes, colorful arroyos, and scenic box canyons have resulted in a high level of recreational use relative to other public land in the vicinity of Socorro. Traditional uses in the area include deer and quail hunting, off-road vehicle (ORV) use along the arroyos and ways, rock collecting, hiking, camping, and rock climbing. Motor vehicle use in the WSA is limited to existing roads and trails. Despite this designation, frequent ORV use occurs in the larger arroyos and on ways within the WSA.

Publicity resulting from the BLM's designation of the Tinajas ACEC and interpretation at the Arroyo del Tajo pictograph site has resulted in increased public awareness and use, especially archaeological sightseeing in the Arroyo del Tajo area. The recreational potential of the Presilla WSA as a day use area is high because of scenic and cultural resources, proximity to Socorro, and excellent public access.

The Socorro Resource Management Plan (RMP), which is currently being prepared, proposes expanding the existing 1,280-acre Tinajas ACEC in the eastern half of the WSA to an area of approximately 3,520 acres in size.

D. Education/Research

The WSA has been utilized by the New Mexico Institute of Mining and Technology for geologic studies, research purposes, and for organized recreational outings. The potential for future educational and research uses in the WSA is high due to its proximity to the City of Socorro and the archaeological and natural resources of the area.

E. Cultural

In May 1981, the 1,280 acres surrounding the Arroyo del Tajo pictographs were designated an ACEC under the name Tinajas Natural Area. A short trail leads visitors to a register and the pictograph site. The Management Plan for the ACEC recommends 200 acres for administrative withdrawal from mineral entry which is currently being pursued.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

Pre-Federal Land Policy and Management Act (FLPMA) impacts affect the quality of the naturalness of the Presilla WSA. These impacts are discussed below.

Pre-FLPMA impacts on the WSA's naturalness include 5 miles of ways, approximately 10 miles of barbed wire fence, 8 mineral prospecting pits, and 2 mine shafts.

The bladed ways through the area are the most noticeable impact on naturalness. The way along the Arroyo de la Presilla which trends north-south into the center of the WSA is evident from several vantage points in the western half of the area. The ways are most noticeable where they cross hillsides and the sides of the larger arroyos.

The mineral prospecting pits are located in T. 2 S., R. 1 E., Sections 34 and 35. This concentration reduces the apparent naturalness of this portion of the WSA. The mine shafts are located near Arroyo de la Presilla. The cumulative impact of vehicle routes, prospect pits, and mine shafts reduces the apparent naturalness of the central and northern portions of the WSA.

Human activities outside the WSA also have an impact on the apparent naturalness of portions of the WSA. An old fluorspar mine and associated structures and dumps are located in T. 3 S., R. 1 E., Section 2. This section is almost surrounded by the WSA. The mine and associated development are visible from portions of the WSA. A large windmill and storage tank are located on a high ridge adjacent to the southern boundary of the WSA. The windmill is visible from most points in the central and southern portions of the WSA. The inactive mine and the windmill moderately detract from the apparent naturalness of several portions of the WSA.

While portions of the WSA are natural, mining activity and vehicle routes have impacted the overall quality of the naturalness of the Presilla WSA.

b. Solitude

The Presilla WSA contains numerous large east-west trending arroyos. The extensive, convoluted drainage systems and the resulting topographic screening offer visitors secluded areas and result in good opportunities for solitude. These opportunities are not considered outstanding.

Opportunities for solitude are limited and primarily found in Canyon areas such as Arroyo del Tajo. In these areas, the scenic quality, geologic features, pictographs, and ease of access tend to concentrate visitors into small areas. The feeling of solitude is moderately impacted in the Arroyo del Tajo area by a large windmill and storage tank which are located on a ridge overlooking the pictograph site. The windmill and storage tank are also visible from several areas within the WSA.

c. Primitive and Unconfined Recreation

The Presilla WSA contains a variety of landforms which provide visual interest, including colorful arroyos with interesting erosional features such as narrow water-sculpted limestone and granite boxes, sand dunes, and steep ridges. The WSA also contains an interpretive site based on significant Piro Indian pictographs.

The natural and cultural features of the WSA provide outstanding primitive and unconfined recreation opportunities for day hiking, backpacking, camping, photography, various types of sightseeing, and nature studies. However, the quality of these opportunities are reduced and limited by the numerous fences within the WSA. Over 7½ miles of interior and boundary fences limit recreational access and are visible in many portions of the WSA. While hiking along ridges or in the Arroyo Del Tajo area, a windmill and storage tank are readily visible.

2. Special Features

The Presilla WSA contains the Arroyo del Tajo pictograph site which consists of more than 75 figures representing Piro Pueblo religious figures and symbols. The pictograph site, representing a series of events, is virtually unique in the Southwest. Arroyo del Tajo, Arroyo Tinajas, and Arroyo de Tio Bartolo also contain erosional features which are highly scenic. The value of these supplemental qualities is enhanced by their proximity to Socorro and relative ease of access.

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Presilla WSA as being within the Chihuahuan Desert Province. The potential natural vegetation is grama-tobosa shrubsteppe.

PRESILLA

b. Distance from Population Centers

Three cities identified in the 1980 census as Standard Metropolitan Statistical Areas (SMSAs) are located less than 5 hours driving time of the WSA. Albuquerque, New Mexico lies within 2 hours, Las Cruces New Mexico within 3 hours, and El Paso, Texas within 4 hours driving time of the WSA.

B. Manageability

Positive factors influencing the manageability of the WSA include existing access and historical motor vehicle use. Visitors can enter the area from almost any point and disperse throughout the area. Visitors may enter and leave the WSA without leaving land administered by the BLM. However, off-road vehicle management would be a problem due to the abundance of routes, ease of access to and throughout the WSA, and historical use of the area for motorized recreation.

On-the-ground management of the WSA would be enhanced by the visibility of its boundaries. Most of the boundaries are along maintained roads. The boundaries are easy to identify and would reduce conflicts from unauthorized uses or unintentional trespass.

Potential wilderness manageability problems associated with WSMR access needs to 760 acres in the eastern most portion of the WSA would not be significant because the area involved within the WSA is small.

The area could be managed to maintain marginal quality wilderness values in the long-term with designation.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under the All Wilderness Alternative, the entire 8,680 acres of public land within the Presilla WSA would be recommended suitable for wilderness designation. (See Map 23-1 for the WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (WMP) (BLM 1981).

1. Impacts on Wilderness Values

Wilderness designation would enhance the natural values of the mesa benchlands and limestone hills because it could result in a greater amount of rehabilitation of disturbed areas. Although disturbed areas (i.e. ways and mining activity) have poor potential for rehabilitation, in the long-term they could become less noticeable in the context of the entire WSA. However, due to the marginal quality of naturalness in over 50 percent of the WSA, even extensive rehabilitation and intensive management would not result in the return of the area to a substantially natural state.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would preserve the wilderness resources of the Presilla WSA. Naturalness would marginally improve in 50 percent of the WSA as a result of motor vehicle restrictions.

2. Impacts on Exploration and Development of Geothermal, Uranium, Barite, Fluorspar, Lead, Zinc, Copper, and Sand and Gravel.

After wilderness designation, no new geothermal leases would be issued. If a discovery were made in an area adjacent to the WSA, geothermal resources would be impacted in the long-term because there would no longer be an opportunity to fully evaluate the geothermal potential in the Presilla WSA. Although current information indicates that the entire Presilla area has moderate potential for geothermal resources, the impacts of wilderness designation would not be significant because the Presilla WSA is only a small part of an extensive surrounding area of equal potential. Other areas around Socorro would prove as valuable for exploration and development.

Wilderness designation would preclude exploration for and development of a variety of minerals with moderate favorability for occurrence in the WSA. The size of the areas and the minerals that would be affected include 5,500 acres with moderate potential for uranium; 4,300 acres with moderate potential for barite, fluorspar, lead, and zinc; 700 acres with moderate potential for copper; and 1,200 acres with moderate potential for sand and gravel.

Conclusion. In the long-term, since the full mineral potential of the area could not be assessed, the opportunity to explore the following minerals would be forgone under this alternative: 5,500 acres with moderate potential for uranium, 4,300 acres with moderate potential for barite, fluorspar, lead, and zinc, 700 acres with moderate potential for copper, and 1,200 acres with moderate potential for sand and gravel. Wilderness designation would also preclude possible low level development of these minerals.

3. Impacts on Livestock Grazing Use Levels

Livestock grazing is permissible and compatible with wilderness. Livestock grazing use levels would continue at approximately 5 CYL per section (679 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated wilderness. The facilities which have been installed within the WSA to support this level of livestock grazing include 7½ miles of fence. New rangeland facilities are not planned. Minor repairs of fences would have to be accomplished on horseback.

Restrictions of vehicular use, less than 150 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments could create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the entire 8,680 acres of public land in the Presilla WSA would be recommended nonsuitable for wilderness designation (see Map 23-1).

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III, Existing and Potential Uses. These uses would include: continued livestock grazing; energy and mineral exploration for geothermal, uranium, barite, fluorspar, lead, zinc and copper resources; and off-road vehicle use. An administrative mineral withdrawal of 200 acres would be pursued to protect significant cultural resources in the Tinajas ACEC.

Within the 8,680-acre WSA that would not be designated wilderness, unavoidable adverse effects of the proposed action would result from future surface disturbance activities. Over the long-term, these activities would reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation, and special features. Also, cumulative short-term consumptive uses of this land would lead to long-term degradation of wilderness values. Nondesignation of 8,860 acres as wilderness would leave this acreage available for development which could

irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

The wilderness values and special features of the Presilla WSA would not be provided with long-term Congressional protection. Management of the area as specified in existing land-use plans would be subject to administrative change in the long-term. In the long-term, mineral exploration and development would significantly degrade 90 percent of the area's natural values, and opportunities for solitude and primitive and unconfined recreation. Geothermal exploration in areas of moderate potential could result in 5 to 15 temperature gradient holes and low level development of 2 producing wells for direct use applications. Uranium exploration and low level development could result in 20 to 40 drill holes in areas of moderate potential. Exploration and low level development of barite, fluorspar, and metallics could result in 10 to 20 drill holes in areas of moderate potential. Low level development of mineral materials could result in 1 to 3 sales per year. Drill holes and mineral material sales would result in approximately 65 acres of surface disturbance. Up to 5 miles of existing ways would be upgraded to roads.

Unrestricted recreation use and increased vehicle use of 150-250 vehicles per year would reduce opportunities for solitude and degrade the quality of primitive recreation opportunities. However, naturalness and opportunities to view the Arroyo del Tajo Pictograph site would be maintained in the 200 acres designated as an ACEC.

Conclusion. In the long-term, construction of additional vehicle routes and surface disturbance associated with mineral exploration and development would result in the loss of wilderness values in 90 percent of the area. The existing ACEC designation would protect naturalness on 200 acres and provide continued opportunities to view the Arroyo del Tajo Pictograph site.

2. Impacts on Exploration and Development of Geothermal, Uranium, Barite, Fluorspar, Lead, Zinc, Copper, and Sand and Gravel.

Energy minerals leasing would continue. Locatable mining activities would be managed to prevent unnecessary and undue degradation under the Surface Management Regulations (43 Code of Federal Regulations 3809). Approximately 200 acres within the Tinajas ACEC is proposed for mineral segregation and administrative withdrawal.

Conclusion. There would be no impacts on exploration and development of geothermal, uranium, barite, fluorspar, lead, zinc, copper, and sand and gravel resources under this alternative.

3. Impacts on Livestock Grazing Use Levels

Under this alternative, there would be no impacts to livestock use levels in the WSA. Grazing use levels are projected to remain the same and there would be no impacts to livestock grazing operations in the WSA.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report has been prepared with public input obtained by large mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the Statewide Wilderness EIS.

The New Mexico Wilderness Study Area Proposals (BLM 1980) deferred a decision on the Presilla unit's suitability as a WSA to allow the BLM time to evaluate the rehabilitation potential of the area's post-Federal Land Policy and Management Act (FLPMA) mining developments. During public review of the proposal to defer the decision, public comments were received in the form of personal letters, form letters, and petitions.

Eleven personal letters favored wilderness review of the Presilla unit. Supporting reasons included size, naturalness, opportunities for solitude and recreation, and supplemental values. Form letters and petitions received during the comment period listed the Presilla unit as one of the areas supported for further wilderness review.

Four personal letters opposed further wilderness review of the Presilla unit. Supporting reasons included mining and range impacts, the lack of opportunities for solitude, and potential resource conflicts.

After a reevaluation of the Presilla unit's wilderness characteristics based on these public comments, impacts to the area's naturalness, and the potential for rehabilitation of the post-FLPMA developments, the BLM released the entire Presilla area from further wilderness review in the New Mexico Wilderness Study Area Decisions (BLM 1980).

The BLM decision to release the entire Presilla area from further wilderness review was protested to the BLM New Mexico State Director. The State Director denied the protest and his decision was appealed to the Interior Board of Land Appeals (IBLA).

After reviewing the case, the IBLA quoted the Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM 1979) which states, "...impacts resulting from unauthorized activities will not disqualify an area from WSA status." IBLA then reversed the BLM decision denying the protest and remanded the Presilla unit to the BLM as a WSA. As a result of this ruling, Presilla is a WSA and its suitability for wilderness designation was evaluated in the Las Cruces District Wilderness Supplemental Draft Environmental Assessment (BLM 1983).

During the public comment period on the Las Cruces District Wilderness Supplemental Draft Environmental Assessment (BLM 1983), a total of 44 personal inputs were received on the Presilla WSA. Thirty inputs were in favor and fourteen were opposed to wilderness designation.

Support for wilderness designation of the Presilla WSA centered around the WSA's proximity to the community of Socorro, which was felt to enhance its recreational and solitude values as well as supplemental values represented by the Arroyo del Tajo pictograph site and the WSA's visual resources. Several commentators felt the BLM had improperly considered post-FLPMA impacts in assessing the naturalness of the WSA. It was also noted that the BLM failed to reclaim the post-FLPMA mining roads.

Fourteen personal inputs agreed with the recommended action for the Presilla WSA, but provided no new information. White Sands Missile Range (WSMR) noted that approximately 760 acres in the easternmost portion of the WSA is in the Safety Extension Area and that WSMR would be opposed to wilderness designation of this portion of the WSA.

During the public comment period on the New Mexico Statewide Wilderness Draft: Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Presilla WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the Presilla WSA by 18 commentators, 16 of which supported wilderness designation.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Environmental Impact Statement (BLM 1986), specific comments were directed to the Presilla WSA by 23 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "In summary, the Coalition proposal is for a Presilla Wilderness which has outstanding wilderness characteristics and significantly reduces the already low potential for conflicts."

Response: The public land included in the proposed northern addition by the Coalition was determined to be unnatural and lack wilderness values in the Wilderness Intensive Inventory Report (1979) for the Presilla unit. The portion of the unit deferred for later recommendation in the November 1980 New Mexico Wilderness Study Area Decisions document did not include this northern parcel.

The BLM concurs with the Coalition's statement that "Arroyo del Tio Bartolo . . . is cut off from the WSA by an existing road. Also, this 3,120 acre deletion eliminates most of the impacts to naturalness in the WSA." While the remaining 5,560 acres in the

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No. 0100 (concluded)

east half of the WSA possesses outstanding opportunities for primitive recreation, these opportunities are primarily located in canyons which would concentrate visitor use into a small, narrow corridor. Opportunities for solitude are less than outstanding within the WSA.

The BLM acknowledges that Arroyo del Tajo and Arroyo de la Presilla contain scenic, recreational, and cultural values. These resources will be considered for special management (above and beyond the current management prescriptions of the Area of Critical Environmental Concern [ACEC] designation of 1,280 acres) in the Socorro Resource Area Management Plan.

* * * * *

No. 0166

Name(s): Alan P. Nelson

Comment: "The EIS map shows no reasons why Presilla and Sierra de las Canas should not be combined into one WSA."

Response: The two WSAs were not combined into one WSA because they are divided by a well-travelled, regularly maintained bladed road. The road which divides the two WSAs does not meet the roadless criteria on page 32 of the Interim Management Policy and Guidelines for Lands Under Wilderness Review.

APPENDIX 24

SIERRA DE LAS CANAS WSA (NM-020-038)

I. GENERAL DESCRIPTION

A. Location

The Sierra de las Canas (Mountains of the Canes) Wilderness Study Area (WSA) is located in Socorro County in central New Mexico. The WSA is situated 7 air miles east of the City of Socorro.

The following U.S. Geological Survey (USGS) topographic maps cover the WSA:

Bustos Well, New Mexico	7½-minute scale
Loma de las Canas, New Mexico	7½-minute scale
Carthage, New Mexico	15-minute scale
San Antonio, New Mexico	15-minute scale

B. Climate and Topography

The WSA is located within the Chihuahuan Desert. Maximum summer temperatures range from 90° to 100°F. Winter temperatures are generally mild during daylight hours (40° to 50°F) and moderately cold at night (15° to 30°F). Spring and fall temperatures tend to be mild. The spring season typically is accompanied by winds ranging from 10 to 40 miles per hour.

Precipitation averages 10 inches per year. Over half the annual rainfall is received during the summer thundershower season (July through September). A third of the year's precipitation usually falls during the winter months (December through March). The remaining moisture, normally 10 percent or less, is received in the spring and fall months.


The WSA is a rugged desert mountain range characterized by sheer rock escarpments, deep narrow canyons, mountain ridges, and mesa tops, broken badlands, and isolated desert valleys. Elevations range from 5,100 to 6,200 feet with a maximum relief of 1,100 feet. Three large drainages are present within the WSA which trend northeast to southwest toward the Rio Grande.

C. Land Status

The WSA includes 12,838 acres of public land. A 160-acre private inholding is located within the area. The Sierra de las Canas WSA is located entirely within the White Sands Missile Range (WSMR) Safety Extension Area. (See Map 24-1 for land status within the WSA boundary.)

Proposed Action – Amended Boundary Alternative

Legend

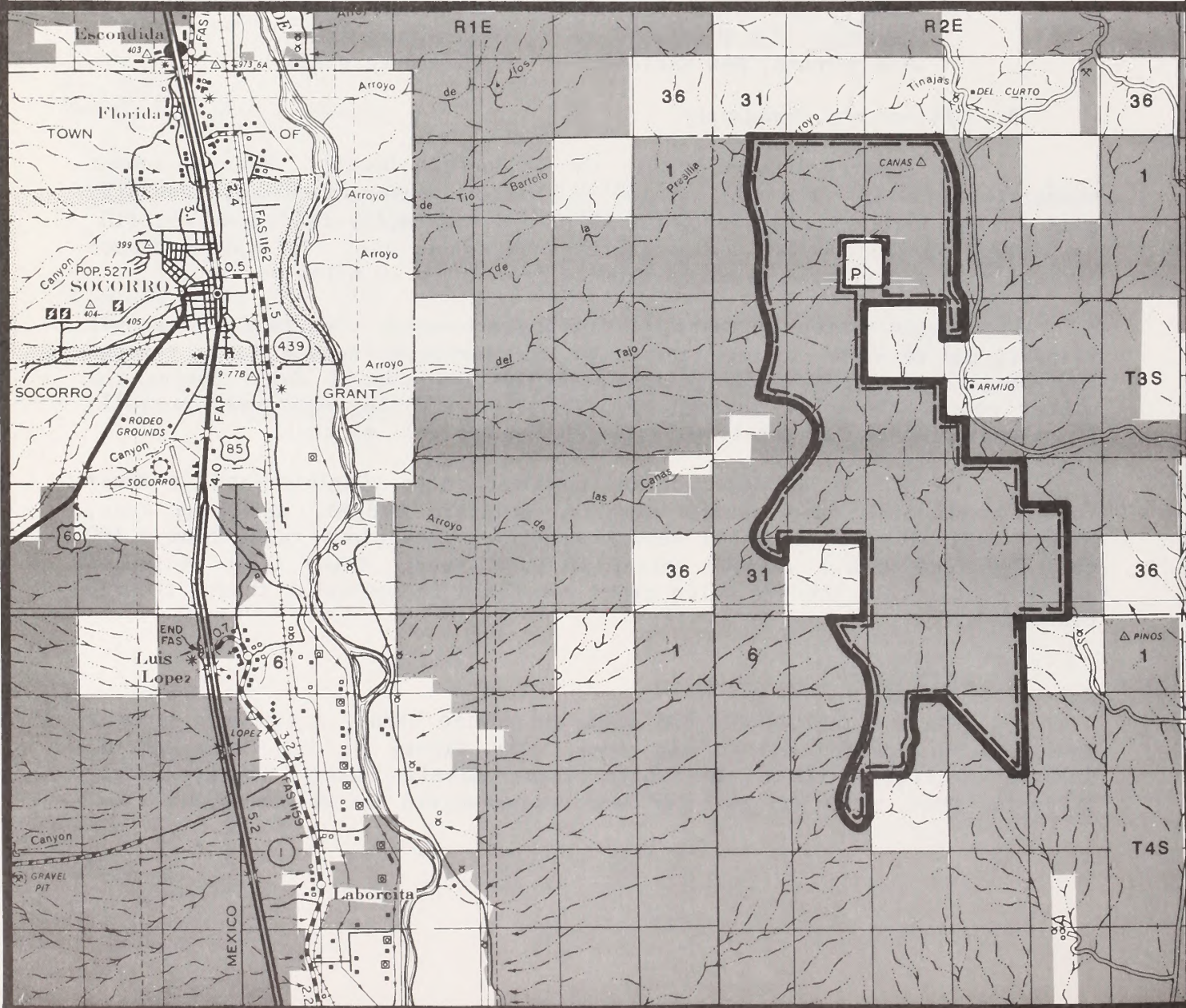
 WSA BOUNDARY
 AMENDED BOUNDARY

Land Status

☐ BLM
☐ PRIVATE
☐ STATE

Scale: 1/2 inch = 1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



D. Access

Primary legal access to the WSA is provided by Quebradas Road which parallels the west boundary of the WSA. This road is maintained by BLM and is suitable for use by two-wheel drive vehicles. There are no vehicle access routes within the WSA.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives are provided in Table 1. The Amended Boundary Alternative is the proposed action for the Sierra de las Canas WSA because of the area's outstanding wilderness values, few resource conflicts and strong public support for designation. Resource conflicts are reduced under this alternative by excluding the 160-acre private inholding.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
--	--

None for this WSA.

Issues Raised and Set Aside	Reasons For Not Conducting a Detailed Analysis
--------------------------------	--

Impacts on the following threatened or endangered species: American peregrine falcon	The U.S. Fish and Wildlife Service has concurred with BLM's finding of no effect on species Federally-listed or proposed for listing as threatened or endangered. An analysis of potential impacts to threatened or endangered species would be required for any proposed surface disturbing activities.
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Impacts to Cultural Sites	Cultural resources were not selected for detailed analysis because potential surface disturbing activities are away from known sites. A detailed site-analysis would be required for any proposed resource development.
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Alternatives Selected for Detailed Analysis	Reasons
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All Wilderness	12,838 acres were identified during the inventory as having wilderness values.
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Amended Boundary (Proposed Action)	Improved manageability and conflict with access to private inholding would be eliminated.
---------------------------------------	---

No Wilderness	The No Action Alternative required by NEPA.
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Environmental Issues Selected for Detailed Analysis

The primary issues for this WSA are impacts on the quality of the area's wilderness values and impacts on geothermal resources or the locatable nonenergy minerals (copper, barite, fluorspar, lead, and zinc). No significant impacts were identified; however, these resources are analyzed because of the WSA's moderate potential for these minerals and because mineral potential is a Statewide issue. Concerns regarding livestock grazing use levels include the inconvenience to livestock operators from vehicle restrictions under wilderness designation, as well as an expected increase in vandalism and harassment if it is not designated wilderness.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
<p>°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 12,838 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-No motorized vehicle use would be allowed. There are no access routes and the WSA does not receive ORV use.</p> <p>-Current livestock grazing levels of approximately 6 head per section per year would continue.</p> <p>-12,838 acres would be closed to energy minerals leasing.</p> <p>-12,838 acres would be closed to mining claim location.</p> <p>-Attempts would be made to acquire 1,120 acres of State land and 160 acres of private land within and adjacent to the WSA.</p> <p>-Reasonable access would be granted to WSMR personnel to recover missile debris which might impact in the area.</p>	<p>°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 12,798 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-No motorized vehicle use would be allowed. There are no access routes and the WSA does not receive ORV use.</p> <p>-Current livestock grazing levels of approximately 6 head per section per year would continue.</p> <p>-12,798 acres would be closed to energy minerals leasing.</p> <p>-12,798 acres would be closed to mining claim location.</p> <p>-Attempts would be made to acquire 1,120 acres of State land and 160 acres of private land within and adjacent to the WSA.</p> <p>-Reasonable access would be granted to WSMR personnel to recover missile debris which might impact in the area.</p> <p>°MANAGE 40 ACRES WITHOUT WILDERNESS PROTECTION. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Reasonable access to private land would be allowed subject to protective stipulations.</p>	<p>°MANAGE 12,838 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-No off-road vehicle use would be allowed as there are no existing roads and ways in the WSA.</p> <p>-Current livestock grazing levels of approximately 6 head per section per year would continue.</p> <p>-12,838 acres would remain open to energy minerals leasing and mining claim location.</p> <p>-The entire 12,838 acres with moderate potential for geothermal, barite, fluorspar, and base metals would be open to exploration. Geothermal exploration would consist of a total of 5 to 10 temperature gradient holes leading to low level development of two wells for direct use application. Exploration for barite and fluorspar would consist of a total of 5 to 15 drill holes leading to low level development resulting in an additional 5 to 10 acres of surface disturbance. Base metal exploration would consist of a total of 10 to 20 drill holes leading to low level development resulting in an additional 10 to 15 acres of surface disturbance. Total surface disturbance would be 40 to 100 acres. There would also be an additional 10 miles of new access roads.</p> <p>-No special attempts would be made to acquire State and private lands.</p> <p>-Access would be granted to WSMR personnel to recover missile debris which might impact in the area.</p> <p>-Access to private land would not be restricted.</p>

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues Impacts on Wilderness Values
All Wilderness (12,838 acres)	The natural character of this rugged desert mountain and broken badlands landscape would be maintained. Outstanding opportunities for solitude, and outstanding opportunities for hiking, backpacking, photography, deer hunting, and sightseeing. The area's special scenic features created by the colorful rock banding would also be maintained.
Amended Boundary (12,798 acres recommended suitable, 40 acres recommended unsuitable) (Proposed Action)	Wilderness designation would protect 99 percent of the area's high quality wilderness values. Motorized access to the private inholding would be allowed.
No Wilderness (12,838 acres)	Wilderness values would not receive long-term Congressional protection. The area would probably retain its naturalness, outstanding opportunities for solitude and primitive recreation in the short-term. Mineral exploration activities, mining claim assessment work, and off-road vehicle use would degrade naturalness in 25 percent of the area over the long-term. Anticipated mineral exploration and development of up to 70 drill holes and 2 geothermal wells would result in approximately 50 acres of surface disturbance. Up to 10 miles of new road would be constructed in conjunction with mineral exploration and development.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Sierra de las Canas WSA is located along the complexly faulted western margin of the Loma de las Canas uplift. This series of mountains, hills, and cuestras forms the highlands between the Rio Grande rift to the west and the Jornada del Muerto Basin to the east. The Loma de las Canas uplift merges into the Joyita-Los Pinos uplift to the north and the San Pasqual platform to the south.

Rock units present in the WSA range in age from Pennsylvanian to mid-Tertiary. Pennsylvanian sediments of the Sandia and Madera formations crop out in the northern part of the WSA. They consist mainly of sandstones, shales, and limestones deposited in a shallow marine environment. The Permian age Abo, Yeso, and San Andres formations are present throughout the WSA. These rocks consist mainly of limestone, shale, sandstone, siltstone, and gypsum, and represent a change from terrestrial to lagoonal and shallow marine environments. The siltstone, shale, and sandstone of the Triassic age Dockum formation crop out in the eastern portion of the WSA. Volcanic rocks of the Tertiary age Datil formation also occur along the eastern margin of the WSA.

B. Water

The WSA is located within the Rio Grande Basin. There are no permanent streams or surface water bodies within the WSA. However, the normally dry arroyos occasionally carry storm runoff to the Rio Grande immediately after rainfall within their respective drainage areas. Periods of flow are short and may be widely spaced in time due to intermittent and sporadic rainfall patterns. Runoff averages 0.1 inches per year.

There are no developed ground water sources within the WSA. Ground water may be present in the Permian age sandstone and limestone formations that occur in and adjacent to the WSA.

Ground water in Pueblito Well, which is located 2 miles west of the WSA, is considered as representative of the WSA. Analysis of ground water samples taken from this well indicates high dissolved solids due to mineralization but of suitable chemical quality for livestock purposes.

C. Soils

Approximately 75 percent of the soils within the WSA were developed from sandstone, limestone, or shale. These soils are typically very gravelly and shallow, and located on the upper and steeper slopes. Deep gravelly soils are present on lower slopes and in canyon bottoms.

Ten percent of the soils are gypsum influenced. There are small pockets of shallow soil over gypsum near the head of Arroyo del Tajo as well as small outcrops of rock gypsum on steep slopes throughout the WSA.

Fifteen percent of the WSA consists of deep and moderately deep loamy soils. They developed from loamy alluvial deposits and occur in small isolated areas within the WSA.

D. Vegetation

1. General

The vegetation of the WSA is typical of the upper Chihuahuan Desert at the northern extreme of its range. Four vegetation types have been identified: desert shrub, pinyon-juniper, creosote, and wasteland.

The desert shrub vegetation type comprises approximately 10 percent of the surface area. The dominant plant species are creosote and black grama. Common shrub species are cholla, datil yucca, prickly pear, desert willow, ocotillo, honey mesquite, one-seed juniper, squawbush, winterfat, broom snakeweed, coldenia, and Mormon tea. Grasses are represented by spike dropseed, burrograss, ring muhly, sand muhly, gypgrass, fluffgrass, alkali sacaton, and galleta. Forbs include ironplant goldenweed, globemallow, and wild buckwheat.

The pinyon-juniper type is an important vegetation component of the WSA covering approximately 35 percent of the surface area. One-seed juniper and pinyon pine dominate; however, numerous plant species are represented in the community. The understory vegetation is dominated by warm-season grasses. The grama grasses are the most prevalent, sometimes constituting as much as 70 percent of the species composition of a vegetation site. Black grama has the highest composition followed by blue grama, sideoats grama, and hairy grama. Of lesser importance are various warm-season grasses, including purple muhly, galleta, Fendler threeawn, ring muhly, sand dropseed, and spike dropseed. Cool-season grasses include silver bluestem, Indian ricegrass, wolftail, bottlebrush squirreltail, and New Mexican feathergrass. Areas classified as pinyon-juniper that exist on soils with a high gypsum content are dominated by gypgrass. The shrub component of the pinyon-juniper community includes broom snakeweed, which in places comprises up to 30 percent of the composition. Other shrubs include datil yucca, mountain mahogany, feather peabush, Mormon tea, littleleaf sumac, squawbush, mariola, cholla, and prickly pear. Forbs present include ironplant goldenweed, Rocky Mountain zinnia, globemallow, hog potato, aster, and spectacle pod.

The creosote vegetation type comprises approximately 36 percent of the surface area. The dominant plant species are creosote, fluffgrass, bush muhly, and broom snakeweed. Other common shrub species include mesquite, mariola, and Mormon tea. Grasses are represented by black grama, galleta, and spike dropseed. Forbs include globemallow, desert holly, wild buckwheat, and pepperweed.

The WSA includes an area classified as wasteland. This area is characterized by extremely sparse vegetation cover which consists primarily of twisted and gnarled junipers, creosote, and widely scattered grasses. Wasteland constitutes approximately 19 percent of the WSA.

2. Rare Plant Species

The U.S. Fish and Wildlife Service (FWS) has not listed any plant species that may occur in the WSA.

E. Wildlife

1. General

Five Standard Habitat Sites (SHS's) have been identified within the WSA. The habitat sites are based on the combination of dominant vegetation and landform. These SHS's support 238 wildlife species, which include 52 mammal species, 53 reptile and amphibian species, and 133 resident and migratory bird species. A complete list of wildlife species to be found within the WSA is on file in the Socorro Resource Area Office.

Big game species indigenous to the WSA are mule deer and pronghorn. Mule deer in the WSA's core mountain area are abundant relative to the surrounding region. Estimated deer densities for this portion of the WSA are four animals per square mile. Densities in the remainder of the WSA are one to two deer per square mile. Pronghorn are not abundant in the WSA.

The most common predator is the coyote. The rocky slopes and bluffs also provide habitat for bobcat and gray fox. Badgers have been sighted in the WSA. Common small mammals include desert cottontails, black-tailed jackrabbits, white-throated woodrats, deermice, and ground squirrels.

The near vertical rock escarpments, box canyons, and numerous exposed rock outcrops are particularly attractive to birds of prey. One golden eagle eyrie is known to be present within the WSA. Other birds which are commonly sighted include red-tailed hawks, sparrowhawks, horned larks, pinyon jays, and ravens.

Reptiles likely to be encountered are the collared lizard, eastern fence lizard, bullsnake, and the western diamond-backed rattlesnake.

2. Threatened or Endangered Fauna Species

The Fish and Wildlife Service furnished the BLM information about one Federally-listed endangered animal species, the American peregrine falcon, which may occur in the WSA. This species was included in a biological assessment (BLM 1982) which concluded that the WSA provides poor quality nesting habitat and there are no current or historically occurring eyries. However, potential habitat exists for supporting migrating individuals because a sufficient prey base and water are available in the Rio Grande Valley. The biological assessment and related correspondence are on file in the Socorro Resource Area Office.

SIERRA DE LAS CANAS

F. Visual

The WSA is dominated by near vertical, multicolored escarpments, twisted and convoluted badlands, narrow box canyons, and other topographic landforms which present considerable visual variety. Vistas of landscapes from high points within the WSA are impressive. The WSA is a desert mountain range with sparse vegetation cover; however, this characteristic accentuates the WSA's rugged starkness, visual immensity, and high solitude and natural values.

G. Cultural

Cultural sites in the WSA range from lithic scatters to at least one petroglyph site to several historic stone structures, one of which is reported to have served as a stage station. Eight sites are currently recorded within the boundaries of the WSA. In addition, over 100 cultural sites have been recorded within a 7-10 kilometer radius of the WSA, with the site types representing a diverse occupational continuum which dates to at least 4000 B.C. The probability for the occurrence of unrecorded sites within the WSA is considered high. However, the occurrence probability is lower than for lands adjacent to the Rio Grande Valley to the west.

H. Air

Generally, the quality of air within the Sierra de las Canas WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May) when winds, commonly gusting in excess of 30 mph, result in dust storms.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resources potential of the lands within the WSA is shown on Map 24-2, Map 24-3, and Table 3. The locations of mining claims are shown on Map 24-4.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE SIERRA DE LAS CANAS WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Paleozoic marine and marginal marine sedimentary rocks	Low	--
Geothermal	Active igneous intrusions along the Rio Grande rift	Moderate	12,838
Uranium	Vein deposits in Precambrian granites and stratabound deposits in Paleozoic sediments	Low	--
Nonenergy Minerals			
Copper ^{a/}	Stratabound deposits within Permian red bed sediments	Moderate	12,838
Barite, Fluorspar ^{a/} , Lead ^{a/} , Zinc ^{a/}	Vein and replacement deposits in Precambrian and Paleozoic rocks	Moderate	12,838
Gypsum	Permian evaporate sediments of the Yeso formation	Low	--
Limestone	Permian San Andres formation marine limestone	Low	--

Notes: *Acreage was not calculated for areas with low potential.

^{a/}Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

1. Energy Minerals

As of April 15, 1986, there were no mineral leases in the WSA.

a. Oil and Gas

Paleozoic rocks favorable for the accumulation of oil and gas are present within the WSA but intense faulting precludes significant

entrapment of petroleum. The WSA is considered to have low potential for the production of these resources.

b. Geothermal

There are no geothermal leases within the boundaries of the WSA, and no exploration or development has occurred. The WSA is located in the Socorro Peak Geothermal Leasing Area and is within 6 miles of a known shallow magma body. In addition, a warm spring is located on the western boundary of the WSA. For these reasons, the WSA is considered to have a moderate potential for the discovery of geothermal resources.

c. Uranium

Uranium is known to occur in Paleozoic limestones and may occur in late-Tertiary valley-fill sediments in the area surrounding the WSA. Paleozoic limestones crop out in the WSA but past prospecting has not disclosed any uranium occurrences and late-Tertiary sediments do not crop out in the WSA. The WSA is considered to have low potential for the discovery of uranium deposits.

2. Nonenergy Minerals

As of April 15, 1986, there were 7 post-Federal Land Policy and Management Act (FLPMA) mining claims recorded with BLM in the WSA.

a. Copper

Copper deposits in Permian red beds are known to occur in a belt extending from Scholle to Carthage passing through the WSA. Some of the deposits were mined in the past but have been uneconomic in recent years. The red beds crop out extensively in the WSA and are considered to have a moderate potential for the occurrence of copper mineralization.

b. Gypsum

The Permian age Yeso formation, which contains gypsum, is found throughout the WSA. The deposits are considered to have a low potential for use because of lack of local demand and the availability of more pure deposits in other parts of central New Mexico.

c. Barite, Fluorspar, Lead, Zinc

Deposits of these minerals are known to occur along faults within Precambrian rocks and within the Madera limestone in the area surrounding the WSA. Several occurrences of barite, fluorspar, lead, and zinc are within a mile of the WSA boundary. The WSA has faulted outcrops of Madera limestone and is considered to be moderately favorable for the occurrence of such deposits.

SIERRA DE LAS CANAS WSA (NM-020-035)

Proposed Action - Amended Boundary Alternative

MAP 24-2 ENERGY MINERAL RESOURCE POTENTIAL *

Legend

— WSA BOUNDARY
--- AMENDED BOUNDARY

Land Status

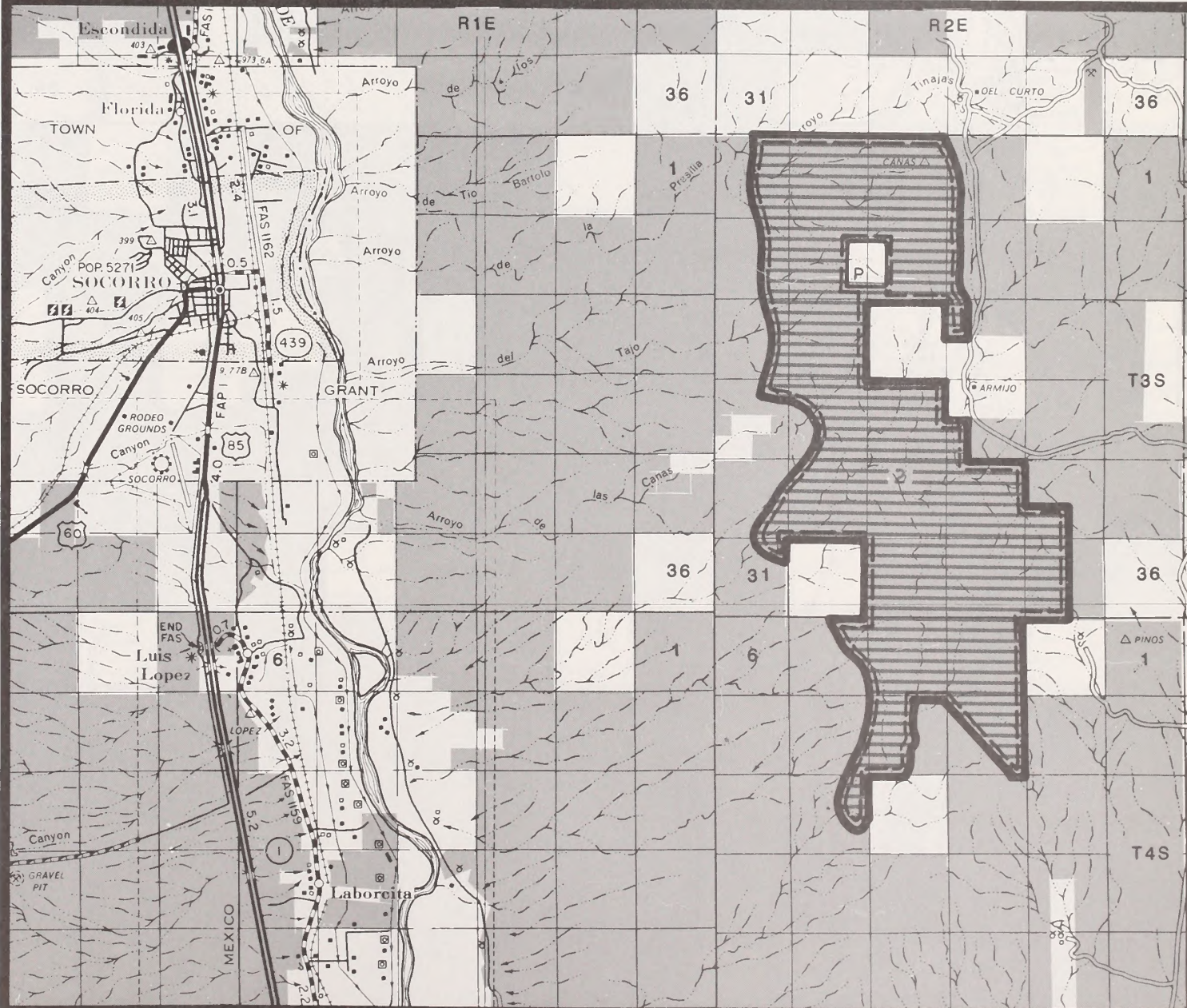
BLM
P PRIVATE
S STATE

Geothermal

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



SIERRA DE LAS CANAS WSA (NM-020-035)

Proposed Action - Amended Boundary Alternative

MAP 24-3 NONENERGY MINERAL RESOURCE POTENTIAL*

Legend

- WSA BOUNDARY
- - - AMENDED BOUNDARY

Land Status

- BLM
- P PRIVATE
- S STATE

Scale: 1/2 Inch=1 mile



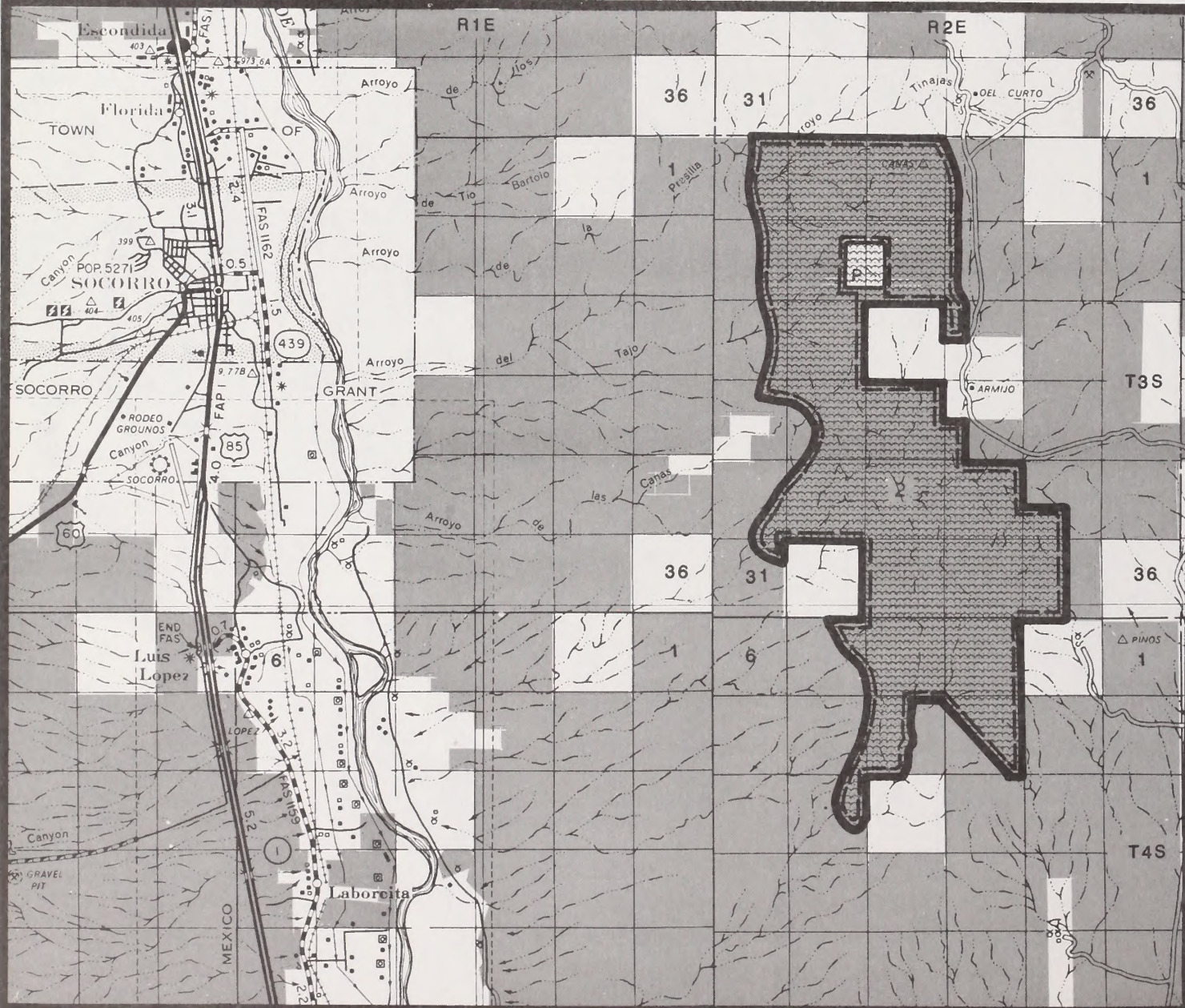
Copper



Fluorspar, Barite, Lead and Zinc

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Source: USDI, BLM, Las Cruces District, April, 1986.



SIERRA DE LAS CANAS WSA (NM-020-035)

Proposed Action - Amended Boundary Alternative

MAP 24-4 MINING CLAIMS AND MINERAL LEASES *

Legend

— WSA BOUNDARY
--- AMENDED BOUNDARY

Land Status

■ BLM
□ P PRIVATE
□ S STATE

0/7 Pre-FLPMA Mining Claims per Section
7 Post-FLPMA Mining Claims per Section

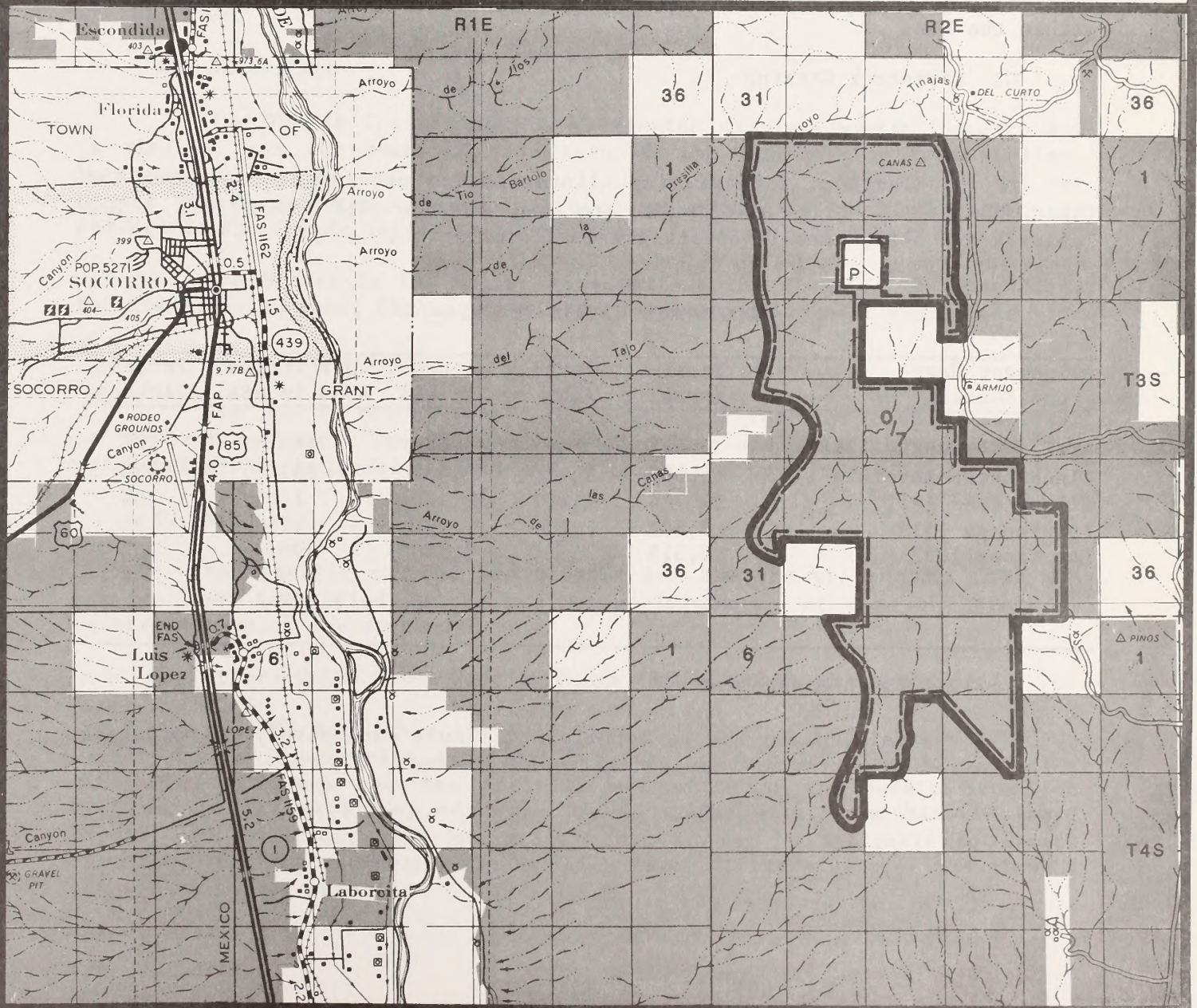
(Claim information from BLM records dated April 15, 1986; claims which overlap more than one section are counted in each section in which they occur.)

FLPMA was passed October 21, 1976.

*No mineral leases exist in the WSA as of BLM records dated April 15, 1986.

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



d. Limestone

The WSA is partly underlain by the San Andres limestone which may be of such purity to be used as agricultural lime or in the manufacture of cement. These deposits would have a moderate favorability for development if local demand for the material occurs. However, because there has been no interest in the area, the potential is considered low.

B. Watershed

The majority of the WSA is located within the Canas Watershed with about 5 percent in the Parida Watershed. The WSA is largely a rough, rocky desert shrub terrain typical of the Rio Grande breaks. Soils are coarse textured, gravelly and range from deep to shallow over bedrock. Most soils have a desert pavement surface. Geologic erosion by wind and water is most active in arroyo channels and alluvial fans. Approximately 25 percent of the WSA falls within the critical erosion class and 75 percent in the moderate erosion class. There are no water control structures or land treatments within the WSA.

C. Livestock Grazing

1. Allotments

Parts of five grazing allotments lie within the Sierra de las Canas WSA. All five allotments are run as cow-calf operations. See Tables 4 and 5 for more livestock grazing information.

TABLE 4
ALLOTMENTS WITHIN THE WSAa/

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Armijo Community 1264	5,617	667	3,880	460	69%
Blackington Mountain 1283	16,656	2,160	5,488	842	39%
Silver Road 1252	14,744	1,607	120	13	0%
La Arenosa 1312	9,682	852	170	17	2%
Las Canas 1262	12,312	1,560	3,180	390	25%
TOTAL			12,838	1,722	

2. Ranch Management

Maintenance has been performed almost exclusively on horseback in the past. This practice would continue as needed.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^a/

Allotment Name and Number	Type of Development
Armijo Community 1264	5 3/4 miles of fence
Blackington Mountain 1283	7 1/10 miles of fence
La Arenosa 1312	1 2/5 miles of fence
Las Canas 1262	4 1/2 miles of fence

Note: ^a/Information shown in tables reflects only Federal acres and animal unit months (AUMs), and rangeland developments on public land.

3. Potential Rangeland Developments

No additional rangeland developments are planned for the WSA at this time.

D. Recreation

The WSA is located within 45 minutes driving time of Socorro and is visible from the community and much of the Middle Rio Grande Valley. Existing recreational use of the WSA is low. However, the recreational use of the WSA is expected to increase in coming years due to its proximity to the Middle Rio Grande Valley, ease of access, and its high natural values.

The Sierra de las Canas WSA is within the Stallion Planning Area. In this Planning Area, ORV use is limited to designated roads and trails.

E. Education/Research

The WSA is not currently being utilized for any known educational or research purpose. The WSA may have education and research potential for paleontological, cultural, wildlife, and natural ecosystem studies.

F. Wildlife

No specific actions are planned for the WSA at present. The WSA has not been identified by the New Mexico Department of Game and Fish for reintroduction of any species.

G. Other--White Sands Missile Range (WSMR) Safety Extension Area

The WSA is within the WSMR Safety Extension Area. This area was established by Cooperative Agreement between the United States Army and the BLM. The agreement requires periodic evacuation of the Safety Extension Area due to its proximity to targeting locations within the Missile Range proper. In addition, WSMR has stated that it may be desirable to locate temporary tracking equipment in the WSA because of its elevation and view of the entire safety area.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The imprints of man within the Sierra de las Canas WSA are minimal. Intrusions consist of approximately 19 miles of barbed wire fence. There are no vehicle routes, stock tanks, or other intrusions in the area.

Unauthorized assessment work, consisting of bulldozing approximately one acre of land, was performed on a mining claim within the WSA. The trespass occurred on the periphery of the WSA. It is believed that the area could be reclaimed so that the disturbance would be substantially unnoticeable in a few years.

The WSA is not only virtually free of obvious human impacts, it also represents one of New Mexico's least disturbed upper Chihuahuan Desert ecosystems. Although grazing use within the area has occurred over the past century, the absence of water combined with rugged topography has resulted in the WSA being subjected to only light grazing pressure by livestock.

b. Solitude

The WSA is a topographically serrated desert mountain range characterized by near vertical escarpments, steep slopes, and rugged canyons. The flanks of the mountains include broken badlands, arroyos, and desert. The topographic diversity coupled with the severity of much of the WSA's landforms ensure outstanding solitude opportunities of the highest quality.

c. Primitive and Unconfined Recreation

This rugged desert mountain environment, with its colorful escarpments, canyons, and vistas, provides an outstanding setting for day hiking, backpacking, photography, deer hunting, and various types of sightseeing. The area is most attractive for these recreational uses during the cooler months.

The area's outstanding recreational opportunities are further enhanced by the area's proximity to Socorro and Interstate 25 and the well maintained road which provides access to the western edge of the WSA. Recreation opportunities within the WSA are of a high quality.

2. Special Features

The WSA represents a fine example of the scenic value of a low elevation desert mountain range. The value of the area's scenic qualities is enhanced by its location. Rising above the eastern breaks of the Rio

Grande Valley, the WSA is an important part of the visual landscape of the community of Socorro and for travelers along Interstate 25 and U.S. Highway 60. Especially appealing is the scenic quality of the WSA's broken and convoluted western escarpment, which during the late daylight hours, reflects variegated colors tinged with red. A high degree of contrasts between the escarpment and valley is an unusual, striking landscape feature.



Western Face of Sierra de las Canas.

3. Multiple Resource Benefits

The WSA contains a variety of natural resource values, such as landforms and vegetation, as a result of its undisturbed character. Congressional designation of this area as wilderness would provide a greater degree of long-term protection for these natural values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Sierra de las Canas WSA lies near the northern extreme of the Chihuahuan Desert Province and close to the southern edge of the Colorado Plateau Province as identified in the Bailey (1976) - Kuchler (1966) Classification System.

Potential natural vegetation consists of 4,488 acres of pinyon-juniper woodland in the Colorado Plateau Province and 8,350 acres of grama-tobosa shrubsteppe in the Chihuahuan Desert Province. However, because of the WSA's geographic position between the Chihuahuan Desert and the Colorado Plateau Provinces, these areas are not clearly distinctive. Instead, they tend to intergrade into one another to varying degrees.

b. Distance From Population Centers

Three cities identified in the 1980 census as Standard Metropolitan Statistical Areas (SMSAs) are located within less than 5 hours driving time of the WSA. Albuquerque, New Mexico, lies within 2 hours, Las Cruces, New Mexico, is within 3½ hours, and El Paso, Texas, within 4½ hours driving time of the WSA. The proximity of the WSA to Socorro, New Mexico is significant in providing easily accessible high quality wilderness values.

B. Manageability

The Sierra de las Canas WSA could be managed to preserve the wilderness values which presently exist in the WSA. Manageability is a judgment made by the BLM after considering factors such as private inholdings, valid existing rights, and the overall land ownership pattern.

Grandfathered livestock operations in the WSA are compatible with wilderness management, and required access for maintenance of existing fences is not expected to create problems for wilderness management.

Seven post-FLPMA mining claims are located in the east-central portion of the WSA. The impact these claims may have on wilderness management is difficult to predict at this time.

The Sierra de las Canas WSA lies within a Safety Extension Area used primarily as a safety impact zone in support of several missile test programs conducted at White Sands Missile Range (WSMR). The Extension Area must be evacuated of all human inhabitants during missile firings. The Extension Area is necessary for an indefinite period of time to support future military programs requiring a test range in excess of that provided by the main WSMR. WSMR requires reasonable access to the Extension Area to recover missile debris. However, no known impacts of this nature have occurred within the WSA to date.

A designated wilderness within the WSMR Safety Extension Area would require special management consideration to meet the military's needs while preserving wilderness values and ensuring human safety. Access to recover missile debris could be granted after determining the method which would least impact wilderness values. However, this is not expected to produce significant problems because of the low probability of a missile impacting in the area.

WSMR has also stated that it may be desirable to locate temporary tracking equipment in the WSA because of its elevation and view of the entire safety area. The BLM will cooperate with WSMR to locate other suitable sites with similar characteristics outside the WSA. Based on a preliminary review of public land patterns and the topography of the region, it is anticipated that other suitable sites would be available.

A single 160-acre private inholding which includes a perennial spring is located in the WSA. In 1986, a Right-of-Way (ROW) application was submitted for an access road to the private inholding. The application is currently pending. Should the landowner pursue the ROW to construct a vehicle access route into his property and develop the spring site, the

presence of this inholding within a designated wilderness would pose significant manageability problems. The acquisition by the BLM of the 160-acre private inholding through voluntary exchange would enhance the manageability of the WSA and also assist in maintaining the area's ecosystem and wildlife values. At this time, however, the acquisition of the inholding is unlikely because of the owner's opposition. The Amended Boundary Alternative eliminates access conflicts to this 160-acre private inholding.

Other actions to enhance manageability of the WSA would be the future acquisition, through voluntary exchange, of approximately 1,120 acres of State land which lie adjacent to the WSA. Acquisition of these parcels would provide a more easily identifiable and manageable boundary. Lands recommended for acquisition are legally described below.

Lands Recommended for Acquisition

<u>Legal Description</u>	<u>Acres</u>
State Land	
T. 3 S., R. 2 E., Section 16, All	640
Section 32 (that portion east of the	
Quebrados Road)	480
TOTAL	1,120
Private Land	
T. 3 S., R. 2 E., Section 8, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$	80
Section 9, SW $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$	80
TOTAL	160

In addition, a high potential exists for expanding the WSA northward if checkerboarded public land could be consolidated through the acquisition of State and private lands in future years.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 12,838 acres of public land within the Sierra de las Canas WSA would be recommended suitable for wilderness designation. (See Map 24-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981).

1. Impacts on Wilderness Values

Wilderness designation would provide long-term Congressional protection for the high quality wilderness values present in desert mountain and badland landscape. This long-term protection and management would maintain the area's high quality naturalness, outstanding opportunities for solitude, outstanding opportunities for hiking, backpacking, photography, deer hunting, and sightseeing, and scenic values associated with the colorful banding in the rocks. Providing a vehicle access route to the private inholding would disturb approximately 2-4 acres.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would preserve the wilderness resources of the Sierra de las Canas WSA, but naturalness on 40 acres of public land would be diminished, due to access to and development of a private inholding.

2. Impacts on Exploration of Geothermal Resources and Nonenergy Locatable Minerals

Despite moderate potential for geothermal resources on 12,800 acres in the Sierra de las Canas WSA, there has been no exploration or drilling in the area. After wilderness designation, no new leases would be issued. If a discovery were made in an area adjacent to the WSA, geothermal resources would be impacted in the long-term because there would no longer be an opportunity to fully evaluate the geothermal potential in the WSA. However, the impacts of wilderness designation on geothermal resources would not be significant because the Sierra de las Canas WSA is only a small part of a surrounding extensive area of equal geothermal potential. Areas closer to the community of Socorro would prove much more valuable for geothermal exploration and development.

Although 12,838 acres in the Sierra de las Canas WSA have moderate potential for copper, barite, fluorspar, lead, and zinc, only 7 mining claims are presently located in the area. After wilderness designation, the location of new mining claims would not be allowed. However, development work, extraction, and patenting of mining claims existing in the Sierra de las Canas WSA as of the date of designation would be allowed if the claims are determined to be valid.

Although any existing valid claims could be developed after wilderness designation, the mining companies could incur additional costs of operation depending on restrictions on acceptable mining methods and the type and location of acceptable access. Since additional exploration for nonenergy locatable minerals outside of existing claim boundaries would also be prohibited, the minerals industry could be affected in the long-term since the full potential of the area could not be assessed. However, the impacts on exploration and development of copper, barite, fluorspar, lead, and zinc deposits in the WSA would not be significant because current information indicates that most deposits of the type expected in the Sierra de las Canas WSA tend to be small and currently uneconomical to mine.

Conclusion. Impacts on the exploration and possible development of geothermal, copper, barite, fluorspar, lead and zinc resources would not be significant. Despite moderate potential for geothermal resources on 12,838 acres in the Sierra de las Canas WSA, there has been no exploration or drilling in the area. Impacts to nonenergy minerals would not be significant as most deposits of the type expected in the WSA tend to be small and uneconomical to mine.

3. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 6 CYL per section (1,722 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed within the WSA to support this level of livestock grazing use include 18.75 miles of fence. New rangeland facilities are not planned. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy, with permits required when motorized vehicles or equipment are used. Minor repairs to the fences would have to be accomplished on horseback.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. Amended Boundary (Proposed Action)

Under the Amended Boundary Alternative, 12,798 acres would be recommended suitable and 40 acres would be recommended nonsuitable for wilderness designation. The 40-acre deletion would provide an access corridor into a 160-acre private tract and spring. This would allow the private landowner to construct a vehicle access route into his property to improve existing structures and construct new facilities and develop the spring site. Private inholdings of 160 acres would be eliminated from the wilderness area.

Under this alternative, like the All Wilderness Alternative, existing vehicle routes and legal subdivision lines are utilized to identify the boundaries of the proposed wilderness.

In the 12,798 acres designated as wilderness, potential recreational vehicle use and opportunities for exploration and development of minerals would be foregone. Short-term consumptive uses would not degrade the maintenance and enhancement of the long-term productivity. Although designation of wilderness constitutes a long-term commitment of resources, such designation is reversible by Congress.

In the 40 acres not designated wilderness, unavoidable adverse effects of the proposed action would result from future surface disturbance activities. Over the long-term, road construction and maintenance activities would reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation, and special features. Also, cumulative short-term consumptive uses of this land would lead to long-term degradation of wilderness values. Nondesignation of 40 acres as wilderness would leave this acreage available for development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

Wilderness designation would provide long-term Congressional protection for 12,798 acres of the WSA. This would result in significant long-term maintenance of the high quality wilderness values and scenic resources. Surface disturbing activities such as road construction, mineral exploration and development, and motorized recreational use would be prohibited.

The remaining 40 acres would not receive long-term Congressional protection. An access road to the 160-acre private inholding could be constructed across this 40 acres. This would reduce the naturalness and opportunities for solitude and primitive recreation available on these 40 acres.

Conclusion. The impacts would be the same as the All Wilderness Alternative except that access would be less restricted (on 40 acres) to a private inholding. Recommending these 40 acres as nonsuitable would significantly reduce future manageability problems associated with the private inholding while not compromising any of the wilderness values present in the WSA.

2. Impacts on Exploration of Geothermal Resources and Nonenergy Locatable Minerals

Despite moderate potential for geothermal resources on 12,838 acres in the Sierra de las Canas WSA, there has been no exploration or drilling in the area. After wilderness designation, no new leases would be issued. If a discovery were made in an area adjacent to the WSA, geothermal resources would be impacted in the long-term because there would no longer be an opportunity to fully evaluate the geothermal potential in the WSA. However, the impacts of wilderness designation on geothermal resources would not be significant because the Sierra de las Canas WSA is only a small part of a surrounding extensive area of equal geothermal potential. Areas closer to the community of Socorro would prove much more valuable for geothermal exploration and development.

Although 12,838 acres in the Sierra de las Canas WSA have moderate potential for copper, barite, fluorspar, lead, and zinc, only 7 mining claims are presently located in the area. After wilderness designation, the location of new mining claims would not be allowed. However, development work, extraction, and patenting of mining claims existing in the Sierra de las Canas WSA as of the date of designation would be allowed if the claims are determined to be valid. It is estimated that no more than one of these claims would prove to be valid.

Conclusion. Impacts on the exploration and possible development of geothermal, copper, barite, fluorspar, lead and zinc resources would not be significant. Despite moderate potential for geothermal resources on 12,838 acres in the Sierra de las Canas WSA, there has been no exploration or drilling in the area. Impacts to nonenergy minerals would not be significant as most deposits of the type expected in the WSA tend to be small and uneconomical to mine.

3. Impacts on Livestock Grazing Use Levels

Domestic livestock grazing is a permissible and compatible use within wilderness. However, wilderness designation would have an impact on grazing use by narrowing the range of management options available to permittees and the BLM.

Current livestock grazing levels of approximately 6 head (cattle) per section per year would continue. Existing fences would not be removed so long as they are necessary to ranch operations. Virtually all ranch management activities occurring within the WSA are currently conducted on horseback. If the area is designated wilderness, ranching operations would continue, with few exceptions, much as they have in the past. Casual use of vehicles for inspection or repair of existing facilities off roads would be precluded.

Conclusion. Overall impacts on livestock operations would be minimal because most of the area is presently managed on horseback. No impacts would occur on livestock grazing use levels.

C. No Wilderness

Under the No Wilderness Alternative, the entire 12,838 acres of public land within the Sierra de las Canas WSA would be recommended unsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III. The most probable uses of the area would be continued livestock grazing, mineral exploration, hiking, and sightseeing.

1. Impacts on Wilderness Values

The wilderness values of the Sierra de las Canas WSA would not receive long-term Congressional protection. The WSA would probably retain its wilderness values in the short-term. Under this alternative, there could be long-term reduction of the area's wilderness values, especially

naturalness and scenic qualities as a result of off-road vehicle use, mineral exploration activities and other developments. Approximately 25 percent of the WSA would be affected by this activity.

Conclusion. In the long-term, exploration and development of mineral resources, motorized access resulting in the creation of new roads, and rangeland developments all would degrade the wilderness values of the WSA. Surface disturbing activities would create 10 miles of new access roads and disturb an estimated 40-100 acres. Approximately 25 percent of the WSA would lose its wilderness values as a result of these activities.

2. Impacts on Exploration of Geothermal Resources and Nonenergy Locatable Minerals

There would be no impacts on geothermal resources or nonenergy locatable minerals under this alternative. Geothermal leasing would be allowed. The area would be open to mining claim location.

3. Impacts on Livestock Grazing Use Levels

Under this alternative, grazing use levels are projected to remain the same and there would be no impacts to livestock grazing operations in the WSA.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report has been prepared with public input obtained by large mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the Statewide Wilderness Environmental Impact Statement (EIS).

Public involvement in the wilderness inventory and study process has, with few exceptions, indicated support for designation of the Sierra de las Canas WSA as a wilderness area. Reasons cited have included the area's high naturalness values, outstanding solitude and recreation values, its proximity to Socorro and the Rio Grande Valley, and high scenic, wildlife, and ecological values. The lack of resource conflicts coupled with the area's manageability as wilderness were also mentioned as reasons for designating the area. A number of public comments urged the BLM to acquire the 160-acre private inholding within the WSA due to its important ecological and wildlife values.

Opposition to wilderness designation came from area permittees. Following adjustments to the WSA boundary, all but one permittee appeared satisfied that designation of the involved lands would not significantly hamper or interfere with their respective ranch operations.

White Sands Missile Range (WSMR) personnel expressed concern that designation of the Sierra de las Canas WSA as wilderness could potentially conflict with military operations within the WSMR Safety Extension Area.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 26 letters were received. Four respondents were opposed to wilderness designation because: the WSA has a moderate favorability for geothermal resources, copper, barite, fluorite, lead, and zinc, and untested oil and gas potential; designation will simply attract increased public pressure on the area without compensating benefits; the area is unmanageable and of little value as wilderness; designation would impose hardship and cause difficulty in ranch operations; and WSMR will be restricted in its access and support needs.

Twenty-two respondents supported wilderness designation for the Sierra de las Canas WSA. Reasons for this support centered around the area's wilderness values and minimal resource conflicts. It was also stated that the area's value as wilderness is enhanced by its scenic values, cultural sites, proximity to Socorro, and that it is an excellent example of an upper Chihuahuan Desert ecosystem.

There was also support for enhancing the area's wilderness values through the acquisition of the only private inholding in the WSA which also contains a perennial spring.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Sierra de las Canas and recommended wilderness designation for the entire WSA. Specific comments were directed to the Sierra de las Canas WSA by 13 commentators; 12 of which supported and 1 opposed wilderness designation.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Sierra de las Canas WSA by 20 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "In recognition of naturalness, beauty, and the value of Sierra de las Canas WSA as a recreational area for the growing town of Socorro, the BLM has recommended it suitable for wilderness designation. The additions proposed by the Coalition simply round out the boundaries of this wild and unique area.

The north end and the southwest corner of the area are extended to the nearest roads. The east boundary is expanded to encompass an additional set of ridges which lie between the WSA boundary and a road. The southeast corner is squared off. All of these extensions add rugged terrain to the future wilderness area and increase opportunities for recreation and solitude."

Response: The Coalition's proposal for the Sierra de las Canas WSA is essentially the same as the BLM recommendation in the September 1986 Revised Draft EIS, with the exception of additional public, State, and private lands outside the WSA boundary. About 1,120 acres of the Coalition's proposal included private lands and 1,640 acres of State land not studied by BLM because they are lands located outside the boundaries of the WSA.

If BLM acquired these parcels at some future date and determined that these lands possessed wilderness values, BLM would formally study these lands. Depending on the results of the study, BLM would make a recommendation either in support of or opposition to wilderness designation. The 3,790 additional acres of public land proposed by the Coalition adjacent to the southern and southeastern

No. 0100 (concluded)

portions of the WSA were eliminated from further wilderness review in the November 1980 New Mexico Wilderness Study Area Decisions due to a lack of naturalness.

* * * * *

No. 0166

Name(s): Alan P. Nelson

Comment: "The EIS map shows no reasons why Presilla and Sierra de las Canas should not be combined into one WSA."

Response: The two WSAs were not combined into one WSA because they are divided by a well-travelled, regularly maintained bladed road. The road which divides the two WSAs does not meet the roadless criteria on page 32 of the Interim Management Policy and Guidelines for Lands Under Wilderness Review.

APPENDIX 25

SIERRA LADRONES WSA (NM-020-016)

I. GENERAL DESCRIPTION

A. Location

The Sierra Ladrones (Mountain of Thieves) Wilderness Study Area (WSA) is located in Socorro County in west-central New Mexico. The WSA is situated 15 air miles northwest of the community of Socorro.

The U.S. Geological Survey (USGS) topographic map covering the WSA is the Riley, New Mexico quadrangle at the 15-minute scale.

B. Climate and Topography

The climate of the WSA is characteristic of southwestern desert mountains. Considerable variation in temperature and precipitation is present within the WSA. Maximum summer temperatures in the lower elevations surrounding the mountain peaks range from 90° to 100+°F. In contrast, temperatures in the higher elevations typically are 10° to 15° cooler, ranging from 75° to 90°F. Winter daytime temperatures tend to be mild on low elevation lands, 35° to 50°F. In the higher elevations, diurnal temperatures range from 20° to 40°F with nighttime lows atop the peaks often falling well below zero. Spring and fall temperatures tend to be mild.

Precipitation, like air temperature, is strongly influenced by elevation. Generally, average annual precipitation increases along with elevation increases. Because of the cloud gathering effect of the mountains, low elevation lands surrounding the WSA tend to receive more precipitation than nearby lands of similar elevation; 12 inches per year as opposed to 10 inches. Correspondingly, the highest elevations in the WSA receive a projected average of 16 to 20 inches of precipitation per year.

Over half the area's annual rainfall is received during the summer thundershower season (July through September). A third of the year's precipitation usually falls during the winter months (December through March). The remaining moisture, normally 10 percent or less, is received in the spring and fall months.

The Sierra Ladrones WSA rises precipitously out of the Rio Grande Valley on the east and from mesa grassland and pinyon-juniper woodland on the north, west, and south. Elevations range from 5,200 feet to 9,176 feet with a maximum relief of 3,976 feet.

The WSA is 14 miles long from north to south and 8 miles wide east to west. The core peaks of the range are extremely rugged. The northern end of the WSA terminates with abrupt escarpments which give way to several large canyons. The southern end of the WSA gradually loses altitude from the main peaks with a long narrow ridge eventually tapering down to box

canyons and arroyos along and south of the Rio Salado. On the east, the mountains break into a series of rocky canyons which give this exposure the appearance of an enormous pile of boulders. The western and southern portions of the WSA are characterized by rocky cliffs, mesa rimrock, badlands, and steep slopes cut by numerous box canyons and ravines.

C. Land Status

The Socorro District Wilderness Draft Environmental Assessment (DEA) (BLM 1983) identified the WSA as having 39,308 acres of public land including 560 acres of split-estate land (Federal surface, non-Federal subsurface), 1,960 acres of State inholdings, and 373 acres of private inholdings. These acreage figures were based on the decisions contained in the New Mexico Study Area Decisions (BLM 1980). These decisions were contested and appealed to the Interior Board of Land Appeals (IBLA). The IBLA reversed BLM's decision to delete approximately 6,000 acres south of the Rio Salado from the WSA and directed BLM to add this acreage to the designated WSA.

During the reinventory, the BLM determined that the additional 6,000 acres were divided into two parcels by the Carbon Springs Road.

The east parcel is made up of 3,400 acres of public land which includes 211 acres of split-estate land, and 800 acres of private land. This parcel is contiguous with the original WSA.

The west parcel is made up of 2,600 acres of public land which includes 767 acres of split-estate. The split-estate acres in T. 2 N., R. 3 W., Section 32 are contiguous to the original WSA boundary. Therefore, since the split-estate parcel has been added back to the WSA, the entire west parcel is now contiguous and included in the WSA.

The total WSA now includes 45,308 acres of public land including 1,538 acres of non-Federal subsurface, 600 acres of private inholdings, and 1,960 acres of State inholdings. (See Map 25-1 for land status within the WSA.)

D. Access

Primary legal access to the WSA is provided by Interstate 25 at Bernardo and then west via County Road 12. Legal access is also provided by U.S. Highway 60 at Magdalena and then north via County Road 67.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposed action and alternatives is provided in Table 1. The Amended Boundary Alternative is the proposed action. This alternative recommends 31,804 acres suitable for wilderness and 13,504 acres unsuitable for wilderness designation. This alternative was selected as the proposed action because it balances resource conflicts and preserves the highest wilderness values.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside		Reasons for Not Including this Alternative
None for this WSA		
Issues Raised and Set Aside		Reasons for Not Conducting a Detailed Analysis
Impacts on Threatened or Endangered Species:		There are no known occurrences of these species within the WSA and the U.S. Fish and Wildlife Service concluded there would be no significant impacts on species Federally-listed or proposed for listing as threatened
State-listed Endangered or endangered.		
Gooding's onion		
Slender spiderflower		
Hess's fleaband		
Gilia groundsel		
Federally-listed Endangered		
Lodsen's pennyroyal		
Impacts on Cultural Resources		Cultural resources were not selected for detailed analysis because there are few known sites and a detailed site analysis would be required for any proposed surface disturbing activities.
Alternatives Selected for Detailed Analysis		Reasons
All Wilderness		45,308 acres were identified during wilderness inventory and through IBLA decisions as having wilderness values.
Amended Boundary (Proposed Action)		Improves naturalness and manageability and reduces conflicts, primarily with proposed livestock developments.
No Wilderness		This is the No Action Alternative required by NEPA.
Environmental Issues Selected for Detailed Analysis		
Three issues of concern were identified for the Sierra Ladrone WSA. These include impacts on exploration and development of uranium, cobalt, nickel, copper, high-calcium limestone, silver, lead, zinc, and barite, impacts on the WSA's wilderness values, and impacts on livestock grazing use levels.		
The Sierra Ladrone WSA contains high (1,800 acres) and moderate (8,200 acres) potential for uranium, moderate potential for copper (10,000 acres), cobalt (8,100 acres), nickel (8,100 acres), high-calcium limestone (5,700 acres), silver, lead, zinc, and barite (600 acres). Concerns regarding mineral potential include restrictions to mineral exploration under wilderness designation as well as potential impacts to naturalness and solitude of the Sierra Ladrone WSA resulting from mineral exploration if it is not designated wilderness.		
The wilderness values issue is required by the BLM Wilderness Study Policy. The Sierra Ladrone WSA contains high wilderness values with the majority of the area natural and possessing high wilderness values. It also contains significant special features of scientific and educational value.		
Concerns regarding livestock grazing use levels include the inconvenience to livestock operators from vehicle restrictions under wilderness designation, as well as an expected increase in vandalism and harassment if it is not designated wilderness.		

SIERRA LADRONES WSA (NM-020-016)

PROPOSED ACTION - AMENDED BOUNDARY ALTERNATIVE

Legend

— WSA BOUNDARY

- - - AMENDED BOUNDARY

Land Status

BLM

PRIVATE

STATE

BLM SURFACE/NON BLM SUBSURFACE

MAP 25-1 LAND STATUS

Scale: 1/2 Inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
°MANAGE TO MAINTAIN OR ENHANCE WILDERNESS VALUES ON 45,308 ACRES. THE FOLLOWING ACTIONS WOULD BE TAKEN:	°MANAGE TO MAINTAIN OR ENHANCE WILDERNESS VALUES ON 31,804 ACRES. THE FOLLOWING ACTIONS WOULD BE TAKEN:	°MANAGE 45,308 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-Close 36 miles of ways which currently receive low use by recreationists, livestock operators, and miners. Vehicle use is estimated at less than 150 vehicles per year.	-Close 15 miles of ways which currently receive low use; less than 150 vehicles per year. This use is a combination of recreational, mineral exploration and development, and livestock purposes.	-Vehicle use would be allowed to continue on 36 miles of ways. An additional 10 miles of new roads and about 10 miles of upgraded roads are projected. Motor vehicle use would increase to less than 250 vehicles per year.
-Require permits for motorized access to maintain 14 dirt tanks, 3 developed springs, 12 1/2 miles of pipeline, 1 windmill, and 1 storage tank. Casual use for inspections and minor repairs would be precluded.	-Require permits for motorized access to maintain 5 dirt tanks, 1 developed spring, 5 miles of pipeline, and 1 windmill. Two annual permits for vehicle access are projected. Casual use for inspections and minor repairs would be precluded.	-Permits to maintain livestock developments would not be required, but some restrictions on ORV use would apply.
-Current grazing levels of approximately 5.5 head per section per year would continue.	-Current grazing levels of approximately 5.5 head per section per year would continue.	-Current grazing levels of approximately 5.5 head per section per year would continue. Approximately 5 miles of electric fence and 3 miles of pipeline would be constructed.
-45,308 acres would be closed to energy minerals leasing and mining claim location.	-31,804 acres would be closed to energy minerals leasing and mining claim location.	-45,308 acres would remain open to energy minerals leasing and mining claim location. This includes 1,800 acres of high uranium potential, 8,200 acres of moderate uranium potential, 10,800 acres of moderate high-calcium limestone potential, 10,000 acres of moderate copper potential, 8,100 acres of moderate cobalt and nickel potential, and 600 acres of base and precious metal potential. Uranium exploration could consist of 10 to 20 drill holes in areas of high potential and 20 to 40 drill holes in areas of moderate potential. Exploration could lead to low level development resulting in an additional 10 to 30 acres of surface disturbance. Exploration for high-calcium limestone could result in 15 to 30 drill holes in areas of moderate potential and low level development could result in an additional 80 to 100 acres of surface disturbance. Exploration for copper, cobalt, and nickel could result in 5 to 30 drill holes in areas of moderate potential and low level development could cause an additional 10 to 20 acres of surface disturbance. Exploration for base and precious metals could result in 10 to 15 drill holes and low level development could cause 5 to 10 acres of surface disturbance. Mineral exploration and development would result in approximately 100-200 acres of surface disturbance and 10-20 miles of new and upgraded existing roads.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES
(concluded)

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
-Reasonable access to two parcels (320 acres) of private inholdings would be permitted with consideration for protecting wilderness values. Granting of right-of-way on two existing ways (approximately 3 miles) is anticipated.	-Reasonable access to two parcels (320 acres) of private inholdings would be permitted with consideration for protecting wilderness values. Granting of right-of-way on two existing ways (approximately 3 miles) is anticipated.	Access to private inholdings would be permitted without consideration for protecting wilderness values. Granting of at least 2 rights-of-ways (approximately 3 miles) is anticipated.
-Attempts would be made to acquire 4,510 acres of State and private lands within and adjacent to the WSA, and 1,538 acres of non-Federal mineral estate.	-Attempts would be made to acquire 3,710 acres of State and private lands within and adjacent to the WSA.	-Attempts would be made to acquire approximately 2,500 acres of State and private lands in the Ladron Peak area.
-Two wildlife waters and 8 spring developments could be developed subject to wilderness protection stipulations. Motorized access would not be allowed to wildlife water sources.	-Two wildlife waters and 5 spring developments could be developed subject to wilderness protection stipulations. Motorized access would not be allowed to wildlife waters.	-Two wildlife waters and 8 spring developments would be developed. Motorized access to wildlife waters would be allowed.
-Desert bighorn sheep would be reintroduced as soon as sheep are available. Management would strive to maintain the herd size at a maximum 125 animals.	-Desert bighorn sheep would be reintroduced as soon as sheep are available. Management would strive to maintain the herd size at a maximum 125 animals.	-Desert bighorn sheep would be reintroduced as soon as sheep are available. Management would strive to maintain the herd size at a maximum 125 animals.
-Reasonable access to 1,538 acres of split-estate minerals would be permitted with consideration for protecting wilderness values. The need for access is not likely due to the low mineral potential of the split-estate parcels.	-Reasonable access to 560 acres of split-estate minerals would be permitted with consideration for protecting wilderness values. The need for access is not likely due to the low mineral potential of the split-estate parcels.	-Access to 1,538 acres of split-estate minerals would be permitted with fewer restrictions than in a designated wilderness area.
-Communication facilities would be excluded from the area.	-Communication facilities would be excluded from the area.	-Communication facilities would be allowed in areas along Ladron Mountain. Restrictions would be less stringent than if it was in a wilderness area.
	MANAGE 13,504 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	
	-13,504 acres would remain open to energy minerals leasing and mining claim location.	
	-3 springs could be developed for wildlife water sources. Motorized access to maintain these water sources would be allowed.	
	-Permits would not be required to maintain 7 1/2 miles of pipeline, 9 dirt tanks, 2 developed springs, and 1 water storage tank.	
	-Vehicle use would be allowed to continue on 21 miles of ways. A projected 5 miles of additional roads and ways would occur in the long-term with use of about 100 vehicles or less per year.	
	-Current grazing levels of approximately 5.5 head per section per year would continue. Approximately 5 miles of electric fence and 3 miles of pipeline would be constructed.	
	-Access to 978 acres of split-estate minerals would be permitted with fewer restrictions than in a designated wilderness area.	

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues	
	Impacts on Exploration and Possible Development of Uranium, Copper, Cobalt, Nickel, High Calcium Limestone, Silver, Lead, Zinc, and Barite	Impacts On Wilderness Values
All Wilderness (45,308 acres)	The opportunity to fully explore and develop the following areas would be foregone: 1,800 acres with high potential and 8,200 acres with moderate potential for uranium, 10,000 acres with moderate potential for copper, 8,100 acres with moderate potential for cobalt and nickel, 10,800 acres with moderate potential for high-calcium limestone, and 600 acres with moderate potential for silver, lead, zinc, and barite.	The natural character of this forested and rugged mountain would be maintained. The successful reintroduction of bighorn sheep would be dependent upon maintaining the natural character of this area. Opportunities for solitude, hiking, backpacking, hunting, technical rock climbing and photography would also be maintained.
Amended Boundary (31,804 acres recommended suitable, 13,504 acres recommended nonsuitable) (Proposed Action)	The opportunity to fully explore and develop the following areas would be foregone: 1,800 acres with high potential and 8,200 acres with moderate potential for uranium, 10,000 acres with moderate potential for copper, 8,100 acres with moderate potential for cobalt and nickel, 5,700 acres with moderate potential for high-calcium limestone, and 600 acres with moderate potential for silver, lead, zinc, and barite.	Wilderness protection would maintain naturalness, solitude, and recreation opportunities in the area with the highest quality wilderness values. The primary bighorn sheep habitat would be within the wilderness boundary. The naturalness of the designated area would be enhanced by boundary adjustments to exclude rangeland developments and access routes. Degradation of wilderness values would occur in the area recommended nonsuitable due to resource use and development over the long-term. This development would degrade wilderness values on all of the area recommended nonsuitable.
No Wilderness (45,308 acres)	No significant impacts.	Over the long-term, construction of 10 miles of new roads and upgrading of 10 miles of ways, drill pads, and surface disturbance associated with motorized recreation, livestock operations, communication facilities, and mineral exploration and a low level of development would degrade naturalness and opportunities for solitude and primitive recreation throughout the WSA. Continued and increased vehicular access as a result of new roads would degrade naturalness and opportunities for solitude over 75 percent of the WSA.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Sierra Ladrones WSA lies across a zone of transition between the northwestern flank of the Rio Grande rift and the southeastern margin of the Colorado Plateau. The Ladrone Mountains appear to represent a resistant prong of the Colorado Plateau block that juts into the western side of the rift. The WSA is also located on the northeastern periphery of the Datil-Mogollon volcanic field.

Structural features present within the WSA include anticlines, synclines, and numerous faults, flexure, and shear zones. Major faults include the north-trending Jeter, Silver Creek, and La Jencia Creek "domino faults" in the eastern part of the WSA, the north-trending Ladrone fault which runs through the central part of the WSA, and the northeast-trending Cerro Colorado fault zone which intersects the southeast tip of the WSA. Other major structures are the Rio Salado flexure zone which trends northwest through the southern part of the WSA, the Carbon Springs flexure which trends north-south through the western part of the WSA, and the Alamito shear zone trending northeast through the northern part of the WSA.

Rocks exposed in the WSA range in age from Precambrian to Quaternary. Precambrian rocks consist of 1.6-billion-year-old metamorphosed sediments, meta-volcanics, and granites, which are intruded by the 1.3-billion-year-old Ladron pluton. Paleozoic formations include Pennsylvanian-Mississippian rocks, the Permian Abo and Glorieta sandstone, and the San Andres limestone. The Mesozoic era is represented by Triassic and Cretaceous rocks. Cenozoic rocks include the Tertiary Baca, Datil-Mogollon and Popotosa formations, basaltic dikes and sills, and the Quaternary Sierra Ladrones formation, travertine deposits, and surficial deposits.

The Caloso member of the Kelly limestone, found along a prominent hogback on the western side of the WSA, contains fossils of the Kinderhook fauna. Two brachiopods, Dielasma chouteauvensis and Spirifer centronatus, which are common in the Caloso member, are not found elsewhere in New Mexico. The Ladron member, which overlies the Caloso, contains an abundance of corals, brachiopods, and echinoderms. Further discussion of the significance of these fossil beds can be found in Chapter IV, Special Features.

B. Water

The WSA lies within the Rio Grande Basin. The WSA is drained by a radial pattern of intermittent streams tributary to the Rio Puerco on the north and the Rio Salado on the south. The Rio Puerco and Rio Salado are important tributaries of the Rio Grande. Each have extensive watersheds but are dry during much of the year. During periods of significant rainfall or snow melt, the Rio Puerco and Rio Salado are subject to flooding and carry large quantities of sediment. Runoff averages 0.1-0.5 inches per year.

Formations underlying the WSA known to yield ground water include Precambrian age rocks, Pennsylvanian age Madera limestone, Permian age Abo and Yeso formations, Tertiary age Popotosa and Santa Fe formations, and Quaternary age alluvium.

C. Soils

Development of typical soil horizons is seldom found within the WSA. Soils are usually thin and rocky, with gravelly loams and sandy loams underlain by granite bedrock. The only areas with appreciable soil depth occur in the lower canyon bottoms, valleys, portions of the mesa benchland on the west, and along the Rio Salado. Rock outcrops, some of which are massive, cover approximately 40 percent of the land surface of the mountain core area. Soil parent materials are composed predominantly of sandstone, shale, granite, basalt, and limestone. Gypsum is present in the southwestern portion of the WSA.

D. Vegetation

1. General

The Sierra Ladrones WSA includes four major vegetation types: pinyon-juniper, desert shrub, conifer, and bosque.

The pinyon-juniper type covers approximately 89 percent of the WSA. The overstory is dominated by one-seed juniper and pinyon pine. The percent composition of juniper and pinyon in this vegetation type varies from less than 1 percent in the relatively flat areas to the north and west to more than 15 percent on the steep slopes in the center of the WSA. Gambel oak may also be found in the overstory on the steep slopes in the center of the WSA.

In the relatively flat areas at lower elevations, the understory of the pinyon-juniper type is comprised of numerous warm-season grasses, shrubs, and half-shrubs, and a few perennial forbs. The average percent composition of grasses in these areas is 84 percent. The most common grasses are black and blue grama, sand and spike dropseed, alkali sacaton, galleta, ring muhly, burrograss, fluffgrass, and threeawn. The most dominant shrub or half-shrub in these areas, and probably in the entire WSA, is broom snakeweed. Other shrubs and half-shrubs include creosote, four-wing saltbush, feather peabush, cholla, and prickly pear. Some of the perennial forbs present in the understory are prickly-leaf dogweed, ironplant goldenweed, plains blackfoot, plains zinnia, and aster.

On the steep slopes at higher elevations, the understory of the pinyon-juniper type is comprised of warm- and cool-season grasses. There are also more shrubs and half-shrubs in the understory at the higher elevations. The average percent composition of grasses is only 72 percent in these areas. The warm-season grasses include black and blue grama, sideoats grama, hairy grama, sand dropseed, and galleta. The cool-season grasses include Arizona fescue, mountain brome, mutton bluegrass, Junegrass, wolftail, bottlebrush squirreltail, and needlegrass. Shrubs and half-shrubs

present at the higher elevations are broom snakeweed, feather peabush, cholla, prickly pear, datil yucca, shrub live oak, hairy mountain mahogany, skunkbush sumac, Apacheplume, and beargrass. Few perennial forbs are found in the understory of the pinyon-juniper type at the higher elevations.

The desert shrub type covers less than 5 percent of the WSA, and is located in the extreme northern end of the area. The overstory is dominated by cholla. The understory is dominated by perennial grasses such as black and blue grama, sand and spike dropseed, galleta, ring muhly, burrograss, fluffgrass, and threeawn. The major shrub or half-shrub present in the understory is broom snakeweed. The major perennial forb is globemallow.

The conifer type also covers less than 5 percent of the WSA. This type is restricted to the upper ends of the main canyons, such as Canon del Alamito and Canon del Norte. The overstory is dominated by ponderosa pine with some Douglas fir and aspen present in isolated spots. The understory is similar to that found in the pinyon-juniper type at the higher elevations.

Less than 5 percent of the WSA is occupied by the bosque type, which occurs in the broader swales and drainages and is dominated by salt cedar. Other species include inland saltgrass, alkali sacaton, giant sacaton, spike dropseed, and giant dropseed.

2. Rare Plant Species

The WSA contains habitat which offers potential for the occurrence of 1 Federally-listed and 4 State-listed species of endangered or rare plants. A list of these potentially occurring plants follows.

Species: Allium goodingii - Gooding's onion

Status: State-listed endangered

Species: Cleome multicanlis - Slender spiderflower

Status: State-listed endangered

Species: Erigeron hessii - Hess's fleabane

Status: State-listed endangered

Species: Hedeoma todsenii - Lodsens pennyroyal

Status: Federal-listed endangered

Species: Senecio quaerens - Gilia groundsel

Status: State-listed endangered

E. Wildlife

1. General

The Sierra Ladrone WSA supports approximately 201 wildlife species, comprised of 51 reptile and amphibian species, 56 mammal species,

SIERRA LADRONES

and 94 resident and migratory bird species. A complete list of wildlife species for the Sierra Ladrone WSA is available for review at the Socorro Resource Area Office.

Mule deer and cougar are the only big game species that occur in the WSA's mountainous core. Pronghorn have been observed on the western mesa benchland and in the southern portion of the WSA. In the past, the mountain core of the WSA supported a moderate deer population that has since been depleted. Several factors could be responsible for the decline, some of which are disease, overharvest, poaching, predator loss, and drought. Abundant food is available and water sources, while not abundant, are believed adequate.

The most common predator is the coyote. The rocky slopes and bluffs also provide habitat for bobcat and gray fox. Badgers, desert cottontails, black-tailed jackrabbits, white-throated woodrats, deer mice, ground squirrels, and several species of bats also occur in the WSA.

The massive rock escarpments, canyons, and rock outcrops should be attractive to birds of prey. However, raptor density appears to be low. Birds which are commonly sighted in the WSA include horned larks, pinyon jays, western bluebirds, ravens, mourning dove, and Gambels and scaled quail.

Reptiles likely to be encountered are the collared lizard, eastern fence lizard, bullsnake, and western diamond-backed rattlesnake.

The Sierra Ladrone WSA contains two wildlife standard habitat sites (SHS's). These SHS's are described briefly below.

Pinyon-Juniper Woodlands

This SHS is found throughout the WSA in the higher elevations, with the best stands growing on sandy limestone hills, basalt hills, malpais, and loamy range sites. Small scattered stands of one-seed junipers are found around 6,000 feet on north-facing slopes. As the elevation increases, pinyon becomes more and more dominant until in the higher elevations, it is the dominant tree with alligator juniper and oaks being the subdominant trees. Diversity of nongame species is high in this SHS.

Mixed Shrub Grass Hill

This is a diverse SHS with habitat sites scattered throughout the WSA. These sites are adjacent or between pinyon-juniper woodlands. The habitat sites offer little cover for most wildlife species. Most shrubs are found in a sandier soil, on the north side of the hills, or along small arroyos or gullies. Grasses are the principal ground cover with black grama and galleta being the most common.

2. Threatened or Endangered Fauna Species

There are no known threatened or endangered animal species in the WSA. The area is currently being considered as a potential

reintroduction site for the desert bighorn sheep, which is a New Mexico State endangered species.

F. Visual

The WSA is dominated by the granitic core of the Sierra Ladrones. The dramatic uplift of the mountain range, especially when viewed from the north, is inherently scenic. The panoramic view from the top of Ladrone Mountain can be spectacular, especially during the morning or evening hours.

The WSA's greatest scenic asset, however, is its landscape diversity which ranges from a spectacular mountain core to mesa grasslands, box canyons, rimrock, badlands, desert, and the floodplain of the Rio Salado.

The WSA is visible from a distance of nearly 100 miles in some directions. The Sierra Ladrones stand as one of New Mexico's outstanding visual landmarks.

The core area of the WSA, about 20,000 acres, is in a VRM Class I and presently proposed as an Area of Critical Environmental Concern (ACEC) for scenic quality.

G. Cultural

A Special Project Cultural Resources Inventory (Class I) for the Sierra Ladrones WSA was completed by BLM in 1981. The cultural resource information compiled was based upon a comprehensive literature and records search. The following data were extracted from this report and historical documents. The full text of the report is available for review at the Socorro Resource Area Office.

The WSA is unusually rich in cultural resources, both historic and prehistoric. Although less than 3 percent of the WSA has been intensively inventoried, 18 sites have been recorded within the area. Recorded sites range from possible paleo/archaic lithic scatters to historic structures from the 1930's.

The name "Mountain of Thieves" is derived from use of the Sierra Ladrones, apparently by both Navajo and Apache bands, as a stronghold to raid Spanish and later Mexican and American settlements along the Rio Grande as far north as Albuquerque in the seventeenth, eighteenth, and nineteenth centuries. Although the Indians undoubtedly viewed their raids from a different perspective, to the Spanish and later Mexican and American colonists, the removal of livestock from ranches constituted depredations by "thieves". Since the Navajo and Apache themselves usually viewed these raids as primarily "economic" in nature, a form of tribute for past injustices as opposed to warfare, the Spanish name for the Sierra Ladrones becomes understandable.

Warfare between the Spanish, Mexicans, and Americans and the Indians took place in the Sierra Ladrones; however, documentation is very scarce. It is known that the last U.S. Cavalry-Apache engagement within the southern portion of the WSA occurred in 1881. The combatants were Company K

of the 9th U.S. Cavalry Regiment commanded by Colonel Parker and a small band of Warm Springs Apache under Nana. Parker's command was but a small contingent of a much larger U.S. military force which was pursuing Nana and his warriors, which numbered no more than 30 men. However, Nana ambushed Parker and his men in the Salado Box, killing three soldiers and wounding a number of others. There were no Apache casualties.

Nana's engagement with Colonel Parker in the Salado Box is but an example of the history of the Sierra Ladrones WSA. Legends of Conquistadors, buried Civil War cannons, lost treasure, lost bandit gold, lost mines, desperado hideouts, as well as stories of more recent moonshine-still hideaways abound in the WSA. Given its geographic proximity to the Rio Grande Valley and New Mexico population centers on the one hand and its isolation and ruggedness on the other, these stories have been encouraged and given some credibility by the environment of the area. But like Nana's raid, which is history, a number of the legends probably have some historical basis.

The prehistoric cultural resources of the WSA are more significant, especially from a scientific standpoint, than are its historic resources. Most of the known cultural sites within the WSA are prehistoric, and it is anticipated further inventory will broaden the gap in favor of prehistoric sites even further.

Existing data indicate the WSA has been utilized by humans for at least the past 10,000 years. Further, since recent data suggest paleo-Indian sites are likely to be found in high diversity mountain environments such as the core mountain area of the WSA, it is likely the WSA possesses cultural resources which extend even further into the past. Due to the WSA's pivotal geographic location, atypical prehistoric cultural resources (especially for the Mogollon-Anasazi cultures) are anticipated from this area.

H. Air

Generally, the quality of air within the Sierra Ladrones WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resource potential of the lands within the WSA is shown on Table 3 and Map 25-2. The location of mining claims is shown on Map 25-3.

1. Energy Minerals

As of April 15, 1986 there were no oil and gas leases in the WSA.

a. Oil and Gas

The southwestern portion of the WSA is considered to have low potential for the discovery of oil and gas. Petroleum and natural gas may be present in Pennsylvanian rocks under this portion of the WSA, but the existence of traps and reservoirs has not been proven.

b. Geothermal

There are no geothermal leases within the boundaries of the WSA. The east flank of the WSA overlies the western flank of a deep sill-like magma body, and seismic information indicates magma intrusion at a depth of about 5 kilometers below the northeastern portion of the WSA. Deep geothermal reservoirs of this nature have not yet produced commercial energy, and would test the limits of current technology. The probability for discovery of a commercial geothermal energy source within the WSA is judged to be low.

c. Uranium

See discussion under Nonenergy Minerals.

2. Nonenergy Minerals

As of April 15, 1986, there were 71 post-FLPMA mining claims recorded with BLM in the WSA.

a. Uranium/Copper/Cobalt/Nickel

During the mid-1950's, approximately 6,000 tons of uranium ore were produced from the Jeter deposit located approximately $\frac{1}{2}$ mile from the northeastern boundary of the WSA. Occurrences of secondary copper minerals associated with uranium minerals have been verified along a 5-mile long section of the Jeter fault. The area has been prospected by means of shallow surface excavations and drilling during the mid-1950's and early-1970's, but the depressed condition of the uranium market in recent years has precluded additional exploration or development. The potential for the discovery of additional small deposits is considered to be high.

There are indications that the Precambrian metamorphic rocks in the mountainous core of the WSA may contain significant deposits of

copper sulfide and uranium minerals, possibly associated with cobalt and nickel. Current information indicates the moderate potential within the WSA for cobalt is speculative and that a much higher potential exists west of the WSA in the Bear Mountains. Copper occurrences are reported to be scattered throughout the metamorphic terrain, and evidence implies that mineralization occurring along the Jeter fault is a result of metals being leached from the metamorphic rocks and deposited along the fault. Analysis of samples from a prospect in metamorphic rocks and trace element analysis of the Jeter ore body tend to support this theory. The potential for discovery of deposits of this type is considered to be moderate, however, exploration and development is dependent upon economic conditions and the magnitude of the deposit.

b. Silver/Lead/Zinc/Barite

Numerous northwestern and northeastern-trending fractures in Precambrian rocks on the northeastern flank of the Ladrone Mountains are occupied by a complex network of siliceous and carbonate veins. Siliceous veins are known to contain minor amounts of lead-zinc-copper sulfides and moderate amounts of barite and silver. Carbonate veins carry economic grades of silver and some barite.

An area favorable for Mississippi Valley type lead-zinc-barite deposits in limestone has been tentatively outlined on the basis of hydrothermally silicified limestones and silicified fault breccia along the Ladron fault, about 1 mile west of Ladron Peak. These silicified zones are mostly barren of mineralization at the surface, but may be associated with Mississippi Valley type replacement deposits at depth. The potential for the discovery of silver, lead, zinc, and barite resources is projected to be moderate.

c. Manganese

Two areas with low potential for manganese deposits have been identified within the WSA. One area represents a swath along the Carbon Springs fault zone (in the southwest vicinity of the WSA) where it is covered by a travertine cap rock. The Black Mask mine, which produced 566 metric tons of ore during 1952-55, is located in this area. The potential for discovery of commercially significant deposits is low.

The second area, located in the south-central portion of the WSA, is associated with a late Cenozoic unconformity where the upper Madera limestone is overlain by limestone-cobble conglomerate of the Sierra Ladrones formation. Deposits adjacent to this unconformity have produced very minor amounts of low-grade manganese. It is likely that similar deposits could be found in the area, but they would be of too low a grade to be profitably mined, and are not considered to be an economical resource.

d. High-Calcium Limestone

The travertine caprock in the northwestern portion of the WSA, and the Madera limestone in the central portion of the WSA, represent a large reserve of cement and chemical grade limestone. The travertine

SIERRA LADRONES WSA (NM-020-016)

PROPOSED ACTION - AMENDED BOUNDARY ALTERNATIVE

Legend

— WSA BOUNDARY
 --- AMENDED BOUNDARY

Land Status

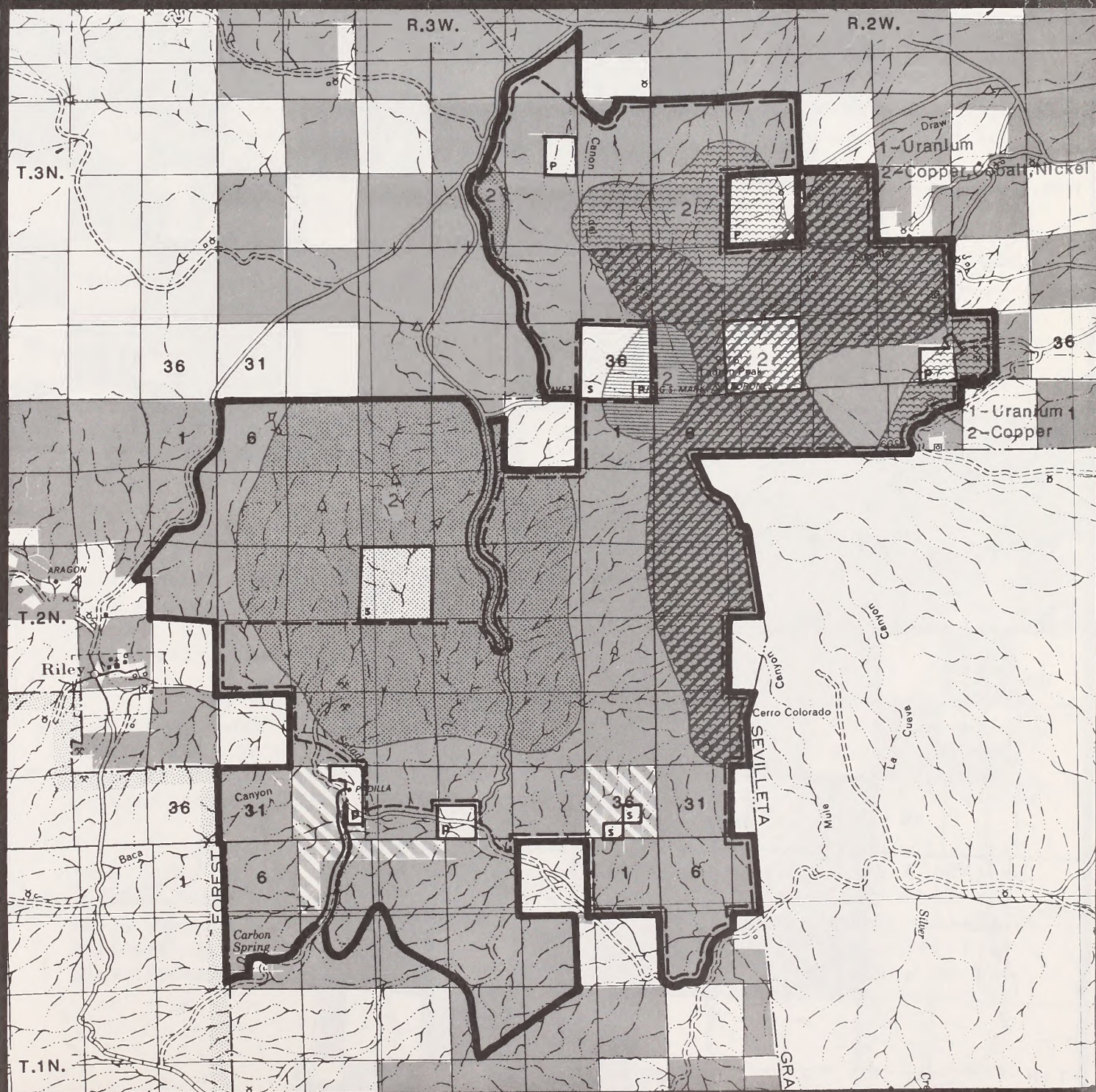
■ BLM
 □ PRIVATE
 □ STATE
 ■ BLM SURFACE/NON BLM SUBSURFACE

Scale: 1/2 inch=1 mile

MAP 25-2 MINERAL RESOURCE POTENTIAL*

■ High Calcium Limestone
 ■ Cobalt, Nickel
 ■ Lead, Silver, Zinc, Barite
 ■ Uranium, Copper

* Areas of high (1) and moderate (2) mineral potential are shown for lands within the WSA except for split-estate land; the potential may extend onto the split-estate land and outside the WSA boundary. Areas of low potential are not shown.



Source: USDI, BLM, Las Cruces District, April, 1986.

SIERRA LADRONES WSA (NM-020-016)

PROPOSED ACTION - AMENDED BOUNDARY ALTERNATIVE

Legend

— WSA BOUNDARY
 --- AMENDED BOUNDARY

Land Status

BLM
 PRIVATE
 STATE
 BLM SURFACE/NON BLM SUBSURFACE

Scale: 1/2 inch = 1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.

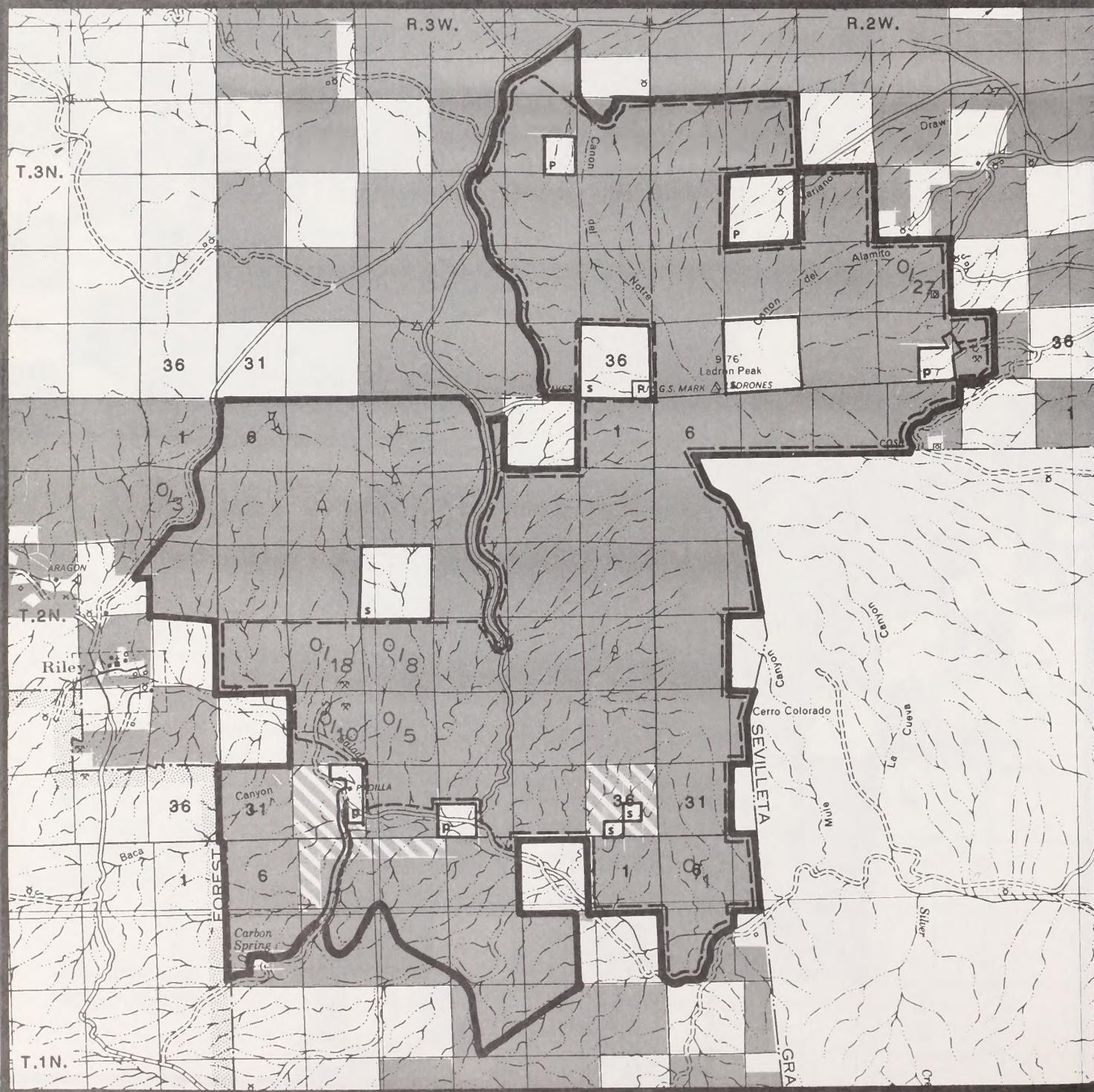
MAP 25-3 MINING CLAIMS AND MINERAL LEASES*

0/1 Pre- FLPMA Mining Claims Per Section
 1 Post- FLPMA Mining Claims Per Section

FLPMA was passed October 21, 1976.

(Claim information from BLM records dated April 15, 1986; claims which overlap more than one section are counted in each section in which they occur.)

*No mineral leases exist in the WSA as of BLM records dated April 15, 1986.



deposit totals approximately 225 million metric tons of which 150 million tons are within the WSA, and the Madera limestone is estimated to total 25-50 million metric tons within the WSA. The principal obstacle to development of these deposits is transportation. The nearest railhead is 20 miles away, and roads in the area are generally poor. However, if the population in central New Mexico continues to grow, there may be sufficient demand for cement. Coal from the Riley-Puertecito area could possibly be used to fire a cement plant in the vicinity of Riley, utilizing locally derived limestone as raw material. The potential for high-calcium limestone is considered moderate.

e. Gypsum

Within and adjacent to the WSA, gypsum beds crop out near the top of the Yeso formation and near the base of the Glorieta sandstone. It has been estimated that 194,000 metric tons of near-surface gypsum deposits occur within the WSA. However, this gypsum is remote from principal construction markets and has poor access. Mining is unfavorable because of thick overburden, interbedded clastic and carbonate units, and structural complexity. The potential is considered low.

f. Tungsten/Bismuth/Fluorspar

There is a possibility that deposits of tungsten-bismuth-fluorspar exist within the WSA. Samples taken from a plug-like body of coarse grained granite contained minor amounts of fluorspar. In addition, stream sediments emanating from this area southwest of Ladron Peak contain anomalous values of tungsten and bismuth. This information suggests that a greisen or vein-type tungsten-bismuth-tin deposit is possible within the area. This is speculative, and the favorable area needs additional study to verify this possibility. The potential is considered low.

B. Watershed

The southern two-thirds of the WSA is located in the Rio Salado watershed and the northern third in the Rio Puerco watershed. Both watersheds in the WSA are characterized by thin, rocky, well-drained soils with sandy gravelly loam textures underlain by granite. The area south of the Rio Salado is in the Cerro Colorado watershed and is characterized by deep, well-drained and gravelly soils.

The Rio Salado and Rio Puerco have extensive watersheds but are dry during most of the year. Due to the thin rocky soil, there is rapid runoff and little ground water storage. Erosion currently is light to moderate but the potential for accelerated erosion is high. There are no erosion control projects in the WSA.

There are two wells within the WSA. Numerous springs and seeps also occur in the area. Four springs have been developed, three on the northern side and one on the western side of the WSA. Ground water in two wells located just outside the WSA boundary is representative of the WSA. Analysis of ground water samples taken from these wells indicates high dissolved solids and marginal limits of gross alpha natural uranium, but the

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE SIERRA LADRONES WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*	Approximate Acreage in Amended Boundary*
Energy Minerals				
Oil and Gas	Mesozoic and Paleozoic marine sedimentary rocks	Low	—	—
Geothermal	Igneous intrusions along Rio Grande rift	Low	—	—
Uranium	Stratiform deposits within Precambrian rocks and supergene enrichment along faults and shear zones	High Moderate	1,800 8,200	1,800 8,200
Nonenergy Minerals				
Copper ^{a/}	Stratiform deposits within Precambrian rocks; vein or replacement deposits in Precambrian and Paleozoic rocks; supergene enrichment along faults	Moderate	10,000	10,000
Cobalt ^{a/} , Nickel ^{a/}	Associated with stratiform uranium/copper deposits	Moderate	8,100	8,100
Manganese ^{a/}	Late Cenozoic hydrothermal-related deposits	Low	—	—
Gypsum	Paleozoic evaporite deposits in Yeso formation	Low	—	—
High-Calcium Limestone	Late Cenozoic travertine deposits	Moderate	10,800	5,700
Silver ^{a/} , Lead ^{a/} , Zinc ^{a/} , Barite	Vein and replacement deposits in Precambrian and Paleozoic rocks	Moderate	600	600
Tungsten ^{a/} , Bismuth ^{a/} , Fluorspar ^{a/}	Vein-type deposits in Precambrian rocks	Low	—	—

Notes: *Acreage was not calculated for areas with low potential.

^{a/}Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

water is suitable for livestock watering purposes. Two springs within the WSA also have some gross alpha natural uranium, but levels are not harmful for livestock purposes.

C. Livestock Grazing

1. Allotments

One grazing allotment and parts of eight other grazing allotments lie within the Sierra Ladrones WSA. All nine allotments are run as cow-calf operations. Livestock grazing use information is displayed in Table 4.

TABLE 4
ALLOTMENTS WITHIN THE WSAa/

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Ojo Saladito 1106	11,291	1,562	3,070	422	27%
Monte Negro 1140	4,764	480	2,400	1,200	50%
North Ladron 1137	7,309	1,464	4,000	2,160	54%
Riley Community 1112	2,592	252	156	9	6%
La Jencia 1159	18,044	2,196	1,322	153	7%
West Ladron 1186	24,990	2,460	17,243	1,697	69%
Ladron Peak 1177	3,905	444	3,300	373	84%
Rio Salado West 1121	7,231	756	723	76	10%
TOTAL			45,308	6,090	

2. Ranch Management

Permittees periodically inspect and maintain as necessary most rangeland developments using motor vehicles. Fence inspection and maintenance is sometimes performed on horseback. Existing rangeland developments are displayed in Table 5.

3. Potential Rangeland Developments

Several electric fencing proposals have been received for development of Holistic grazing systems south of the Rio Salado in the La Jencia allotment. Other potential developments over the long-term could include additional spring developments or pipelines along the foothills of the WSA.

D. Timber Harvest

Approximately 90 percent (38,800 acres) of the Sierra Ladrones WSA is classified as nonproductive forest land (New Mexico Forest Inventory 1975). One-seed juniper is the dominant tree species with pinyon pine representing only a minor component. Scattered stands of ponderosa pine are found within drainages at the higher elevations. The higher elevations also include some Douglas fir and aspen.

SIERRA LADRONESTABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development
Ojo Saladito 1106	1 dirt tank 2½ miles fence 2 2/5 miles access routes
Riley Community 1112	1½ miles fence
La Jencia 1159	23 miles fence 2 spring developments 2 miles pipeline with 4 drinking troughs 7 dirt tanks 18 miles access routes 1 storage tank
West Ladron 1186	22 miles fence 1 spring development 8½ miles pipeline 6 drinking troughs 5 dirt tanks 1 windmill 15 miles access routes
Rio Salado West 1121	1 dirt tank
North Ladron 1137	2 miles pipeline 1 drinking trough 2 miles fence
Ladron Peak 1177	2½ miles fence
Monte Negro 1140	1½ miles fence

Note: ^{a/}Information shown in tables reflects only
Federal acres and animal unit months (AUMs),
and rangeland developments on public land.

Information on stand parameters has never been collected, but certain generalizations can be made from field observations. The stunted nature of the vast majority of juniper is indicative of a very low site quality. Wide tree spacing and the estimated 5 percent crown closure result in a low level of stocking that precludes economic harvesting of the woodland resource. Poor conformation, inherent in understocked stands, also limits the usefulness of the product. Age class is unknown but is certain to be unbalanced due to the preponderance of overmature individuals and a lack of regeneration.

The potential for saw timber production on a sustained yield basis does not exist within the WSA. Production of posts and poles is probably of marginal value due to the poor conformation of the juniper. At present, fuelwood production is considered marginal due to the lack of physical access to the majority of forested lands and the availability of alternate cutting areas (i.e., Forest Service administered land).

E. Recreation

Recreational use of the WSA is moderate. Existing recreational activities in the WSA include day hiking, horseback riding, backpacking, technical rock climbing, natural history activities (e.g., birdwatching), environmental exploration, rockhounding, hunting, and photography. Off-road vehicle use is confined primarily to the Rio Salado and larger arroyos.

Although water is scarce in the WSA, this has not hindered backcountry use and is not expected to do so in the future for those accustomed to or appreciative of desert mountain recreational activities. However, the lack of water within the range is expected to hold this type of use by the public to moderate levels.

Peripheral use (i.e., automobile touring) and short day hikes along the WSA's northern and western peripheries, can be expected to increase due to ease of access and proximity to Socorro, Belen, and Albuquerque, New Mexico.

F. Education/Research

Although the Sierra Ladrones have been the subject of studies and research by the New Mexico Bureau of Mines and New Mexico Institute of Mining and Technology, and independent studies, the WSA is not currently utilized for any known educational purpose. Research on sedimentology of the Ladrone Mountains occurred in 1986. Environmental education and research potential for the WSA, however, is considered significant for cultural, natural ecosystem, paleontological, and geologic studies.

G. Wildlife

The New Mexico Department of Game and Fish (NMDGF) has identified the WSA and adjacent Sevilleta National Wildlife Refuge lands as possessing high potential for the reintroduction of desert bighorn sheep. Habitat conditions are deemed excellent with the possible exception of the need to improve water sources within the mountain range.

A wildlife Habitat Management Plan (HMP) has been developed for the Sierra Ladrones in cooperation with the NMDGF. It is designed to improve and maintain habitat for mule deer, upland game, and nongame wildlife species, and to determine the feasibility of introducing desert bighorn sheep into the habitat area. The objectives of the plan are to create additional water sources and to produce more forage for wildlife. Actions proposed in the plan include construction of 2 wildlife waters, development of 8 springs, and fencing portions of 6 existing earthen reservoirs. When implemented, these actions would increase the potential of the area as wildlife habitat.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The Sierra Ladrones WSA generally appears natural. The eastern mountain core and southwestern corner of the WSA are highly natural in appearance and affected primarily by the forces of nature. The naturalness of the WSA is further enhanced by its dramatic topographic relief, diversity of landforms, and relatively large size.

The WSA is impacted by vehicle routes which vary from jeep trails to two-track ranch access routes. Approximately 2½ miles of a bladed road which provides access to a windmill and large water storage tank has been cherry-stemmed out of the WSA. Other intrusions consist of numerous rangeland development structures. Rangeland developments are concentrated on the northwest shoulder of the WSA. These developments include fences, dirt tanks, developed springs, pipelines, drinking troughs, and access routes. Additionally, the portion of the WSA south of the Rio Salado has also been impacted by rangeland developments and associated access routes. The generally high quality of naturalness in the WSA is reduced in these areas of more intensive grazing management.

Seventeen mining prospects and six old mines are also present in the WSA. These are, for the most part, historic mining impacts which are relatively small in size and unobtrusive in appearance. One area in T. 2 N., R. 3 W., Section 29 is somewhat noticeable and unnatural. No active mining is taking place in the WSA at present.

Although human intrusions are present in the mountain core and in the southern corner of the WSA (north of the Rio Salado), the rugged topography moderates the significance of these intrusions to a considerable degree. In all cases, they are substantially unnoticeable in the area as a whole.

b. Solitude

The Sierra Ladrones WSA is a rugged range of unusual topographic diversity. Its high mountain peaks, isolated canyons, and inaccessible badlands provide the visitor with outstanding solitude opportunities.

c. Primitive and Unconfined Recreation

The WSA provides visitors with outstanding primitive recreational opportunities for day hiking, backpacking, technical rock climbing, horseback riding, photography, nature study, and environmental exploration. The proximity and ease of access of the WSA to Albuquerque, Belen, and Socorro, New Mexico, further enhance the value of these opportunities to the general public.

The WSA is also recreationally important because it is well suited to fall, winter, and spring use. It is during these seasons the WSA is most attractive for recreational pursuits.

2. Special Features

The Sierra Ladrones WSA contains the northernmost known exposures of lower Mississippian rocks in New Mexico. Exposures of these rocks in west-central New Mexico are limited largely to the Magdalena, Lemitar, and Ladrone Mountains. From a regional viewpoint, the Mississippian strata of this region fill a gap between those of southern New Mexico, described by Ladron and Bowsher (1949), and those of northern New Mexico, described by Armstrong (1955). The exposures are of special interest to those wanting to become familiar with the lithology and paleontology of the Mississippian. In the Sierra Ladrones, these rocks are well exposed and abundant in fossils. The excellent descriptions and illustrations of these rocks and fossils by Armstrong make the area valuable for educational purposes.

The scenic values of the Sierra Ladrones WSA are significant both when viewed from a distance (e.g., Interstate 25) and from within the WSA proper. The range of topographic relief and the landform diversity within the WSA create a southwestern scenic resource of considerable importance.

The ecological values of the WSA are also high. The WSA lies near the junction of two major ecoregions and includes such a wide range of landform and life zone diversity that the ecological resources of the area can be considered scientifically valuable.



View of Ladrone Peak.

SIERRA LADRONES

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Sierra Ladrones WSA as being within the Colorado Plateau Province and the Upper Gila Mountains Forest Province. The potential natural vegetation consists of 38,920 acres of juniper-pinyon woodland within the Upper Gila Mountains Forest Province and 2,000 acres of pine Douglas fir forest, and 4,388 acres of grama-galleta steppe in the Colorado Plateau Province.

b. Distance From Population Centers

Three cities identified in the 1980 census as Standard Metropolitan Statistical Areas (SMSAs) are located within less than 5 hours driving time of the WSA. Albuquerque, New Mexico lies within 2 hours, Las Cruces, New Mexico within 4 hours, and El Paso, Texas within 5 hours driving time of the WSA. The Sierra Ladrones are relatively easy to access and centrally located to provide wilderness values to several population centers.

B. Manageability

The Sierra Ladrones WSA could be managed as wilderness. Manageability is a judgment made by the BLM after considering such factors as private and State inholdings, valid existing rights, and overall land ownership patterns.

Inholdings within the WSA include 1,960 acres of State land, 1,538 acres of split-estate and 680 acres of private land. Acquisition of these inholdings, through voluntary exchange, would enhance manageability. Access to a 160-acre private inholding in the northeastern portion of the WSA has recently been requested. Authorizing access to this parcel and the parcel of private land in the northwest portion of the WSA is likely. Deleting these private inholdings from a wilderness area would enhance manageability.

The following State and private lands should have a high priority for acquisition if the area is designated wilderness:

Lands Recommended for Acquisition

<u>Legal Description</u>	<u>Acres</u>
T. 1 N., R. 3 W., Section 2: that portion north of the Rio Salado	400
Section 12: that portion north of the Rio Salado	160

Lands Recommended for Acquisition (continued)

<u>Legal Description</u>	<u>Acres</u>
T. 2 N., R. 2 W., Section 16: All	640
Section 20: that portion west of the Sevilleta Grant	285
Section 32: that portion west of the Sevilleta Grant	195
T. 2 N., R. 3 W., Section 30: that portion north of the Rio Salado	180
Section 32: that portion north of the Rio Salado	10
Section 34: SW $\frac{1}{4}$	160
Section 36: NW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$	80
T. 3 N., R. 2 W., Sections 20 and 32: All	1,280
Section 34: SE $\frac{1}{4}$	160
T. 3 N., R. 3 W., Section 14: SE $\frac{1}{4}$	160
Section 36: All	640
TOTAL	4,350

Grandfathered livestock operations in the WSA are compatible with wilderness management. Necessary vehicle access for maintenance of existing rangeland developments could be allowed under wilderness management. However, degradation of wilderness values, at least in the short-term, could occur due to disturbances such as reconstruction of grandfathered pipelines.

Reasonable access is also guaranteed to State and private inholdings. These access needs are not expected to result in significant management problems. Degradation of wilderness values would occur if communication facilities were developed on Ladrone Peak.

The majority of mining claims within the WSA are clustered in the northeastern and southwestern portions of the area. The impact these claims may have on wilderness management is difficult to predict at this time. No mining activity of consequence has occurred in the WSA in the past 20 years. Although a Mining Plan was filed with BLM in 1980 for initiating mineral exploration on one claim, no further action has been taken by the claimant.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 45,308 acres of public land within the Sierra Ladrone WSA would be recommended suitable for wilderness designation. (See Map 25-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981).

1. Impacts on Wilderness Values

Wilderness designation would provide the existing wilderness values present in the area with long-term Congressional protection. This long-term protection and wilderness management of the area would maintain and enhance the natural qualities of this forested mountain, the outstanding opportunities for solitude, outstanding opportunities for hiking, mountain climbing, camping, and opportunities to study the exposed Mississippian age fossils. The successful reintroduction of bighorn sheep would be dependent upon maintaining the natural character of this mountainous area.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would preserve and enhance the wilderness resources in the Sierra Ladrone WSA.

2. Impacts on Exploration and Development of Uranium, Copper, Cobalt, Nickel, High Calcium Limestone, Silver, Lead, Zinc, and Barite

After wilderness designation, the location of new mining claims would not be allowed. However, development work, extraction, and patenting of mining claims existing in the Sierra Ladrone WSA as of the date of designation would be allowed if the claims are determined to be valid. Individuals or mining companies may incur additional costs of operation depending on restrictions on acceptable mining methods and the type and location of acceptable access.

Individuals and the minerals industry could be affected in the long-term by wilderness designation, because the full potential of the area could not be assessed. Opportunities to explore and develop mineral resources in the following areas would be foregone: 1,800 acres with high potential for uranium, 8,200 acres with moderate potential for uranium, 10,000 acres with moderate potential for copper, 8,100 acres with moderate potential for cobalt and nickel, 10,800 acres with moderate potential for high-calcium limestone, and 600 acres with moderate potential for silver, lead, zinc, and barite.

Conclusion. Wilderness designation would prevent most forms of exploration and preclude potential for large scale development of the mineral resources. This could result in significant impacts on mineral resources.

3. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 5.5 CYL per section (approximately 6,090 AUMs). Under the BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits in an area simply because it is designated wilderness. Existing rangeland developments would not be removed so long as they are necessary to ranch operations. The facilities which have been installed within the WSA to support this level of livestock grazing include 14 dirt tanks, 3 developed springs, 12½ miles of pipeline, 53½ miles of fence, 1 windmill, and 1 storage tank and could be restricted to use by permit only.

Restriction of vehicular use, less than 150 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. Amended Boundary (Proposed Action)

Under this alternative, 31,804 acres of public land would be recommended suitable for wilderness designation and 13,404 acres would be recommended nonsuitable for wilderness designation. Inholdings within the amended boundary include 373 acres of private land and 1,320 acres of State land. (See Map 25-1 for amended boundary.)

The amended boundary would include the mountainous core of the WSA, the escarpments and deep canyons along the north bank of the Rio Salado, as well as riparian areas along the Rio Salado. This area has high wilderness values and could be managed as wilderness. The amended boundary would exclude 8,064 acres from the northwest corner of the WSA and 6,000 acres south of the Rio Salado. Excluding these areas would reduce conflicts and improve the naturalness and manageability of the WSA by eliminating areas of intensive grazing management and associated rangeland developments as well as private and State inholdings. It would also improve the natural boundaries of the WSA by utilizing the Rio Salado as much of the southern boundary.

If this area is designated wilderness, existing and potential uses would be regulated by the Wilderness Management Policy (BLM 1981).

This section presents an alternate boundary which differs from the boundary presented in the draft report by adding approximately eight sections in the southwestern portion of the WSA. This area, which may be described as the "Rio Salado Breaks," contains extensive deeply cut canyons and escarpments as well as riparian areas along the Rio Salado.

Private inholdings would be reduced from 490 acres to 330 acres and State land and mineral estate would be reduced from 2,000 acres to 1,360

acres. This would also reduce the split-estate mineral rights from 1,538 acres of State subsurface mineral rights/BLM surface to 560 acres.

In 31,804 acres designated as wilderness, closure to vehicle use would result, and opportunities for communication site development, and opportunities for exploration and development of minerals would be foregone. Short-term consumptive uses would not degrade the maintenance and enhancement of long-term productivity. Although designation of wilderness constitutes a long-term commitment of resources, such designation is reversible by Congress.

In the 13,504 acres not designated as wilderness, unavoidable adverse effects of the proposed action would result from future surface disturbance activities. Over the long-term, these activities would reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation, and special wilderness features. Also, cumulative short-term consumptive uses of this land would lead to long-term degradation of wilderness values. Nondesignation of 13,504 acres as wilderness would leave this acreage available for development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

Wilderness designation would provide the wilderness values within the 31,804-acre amended boundary with significant long-term Congressional protection. Under this alternative, the WSA's finest representation of mesa benchlands, badlands, and box canyons as well as the mountainous core of the WSA would be permanently preserved.

The naturalness of over one-half the WSA recommended as nonsuitable for wilderness designation would be impacted by development of 100 acres of high-calcium limestone, the construction of 5 miles of electric fence and 3 miles of pipeline, and increased vehicular use of less than 100 vehicles per year. An additional 5 miles of new access roads are projected as a result of this activity. All of the area recommended nonsuitable would be degraded over the long-term due to surface disturbing activities described above.

Conclusion. The wilderness values of the Sierra Ladrones would be maintained on the area recommended suitable and would be degraded over the long-term on the entire area recommended nonsuitable due to surface disturbing impacts.

2. Impacts on Exploration and Development of Uranium, Copper, Nickel, Cobalt, High Calcium Limestone, Silver, Lead, Zinc and Barite

The impacts to mineral resources under this alternative would be the same types of impacts as those described under the All Wilderness Alternative, however, the degree of impact would be less. Approximately half of the area within the WSA with moderate potential for high-calcium limestone has been recommended as unsuitable for wilderness designation under this alternative. Exploration and location of mining claims for

high-calcium limestone could occur on approximately 5,100 out of 10,800 acres with moderate potential.

The opportunity to explore and develop mineral resources in the following areas would be foregone: 1,800 acres with high potential for uranium, 8,200 acres with moderate potential for uranium, 10,000 acres with moderate potential for copper, 8,100 acres with moderate potential for cobalt and nickel, 5,700 acres with moderate potential for high-calcium limestone, and 600 acres with moderate potential for silver, lead, zinc, and barite.

Conclusion. Wilderness designation would prevent exploration and development of the mineral resources in the WSA. Restricting mineral exploration and development could result in the loss of one small scale mine. Approximately half the area with moderate potential for high-calcium limestone would be open for exploration and development.

3. Impacts on Livestock Grazing Use Levels

Under this alternative, 20 miles of barbed wire fencing, 7½ miles of buried plastic pipeline, 6 livestock drinking troughs, 2 wildlife water troughs, 9 dirt tanks, approximately 20 miles of vehicle routes, 2 developed springs, 1 storage tank, and 1 corral would be eliminated from wilderness management. This would reduce impacts to livestock grazing by eliminating the majority of rangeland developments from the WSA. Although impacts to livestock operations inside the amended boundary would remain the same as those described under the All Wilderness Alternative, their significance would be diminished by 60-70 percent. Approximately 5 miles of electric fence and 3 miles of pipeline could also be constructed without wilderness management constraints. Livestock grazing use levels of approximately 5.5 head per section per year would continue.

Conclusion. There would be no impacts on existing livestock grazing use levels. However, restrictions on vehicle access would cause an inconvenience to livestock operators. This inconvenience would be lessened by 60 percent, as 20 of the 36 miles of vehicle routes used by ranchers would be outside the wilderness boundary.

C. No Wilderness

Under the No Wilderness Alternative, the entire 45,308 acres of public land within the Sierra Ladrones WSA would be recommended nonsuitable for wilderness designation. If the WSA is not designated wilderness, existing uses would continue and potential uses would be carried out as described in Chapter III.

The most probable uses of the area are continued livestock grazing, mineral exploration and development, and motorized and nonmotorized recreation. Mineral exploration and a low level of development is expected to occur on 1,800 acres with high potential and 8,200 acres with moderate potential for uranium, on 10,000 acres with moderate potential for copper, on 8,100 acres with moderate potential for cobalt and nickel, on 5,700 acres with moderate potential for high-calcium limestone, and on 600 acres with moderate potential for silver, lead, zinc and barite. Management actions

such as rangeland developments and wildlife and watershed projects could also occur in the long-term. Also, communication facilities would probably be installed on high elevation peaks.

1. Impacts on Wilderness Values

The wilderness values of the Sierra Ladrones WSA would not be provided with long-term Congressional protection. The area would retain its wilderness values in the short-term. In the long-term, 10 miles of new roads and 10 miles of ways, drill pads, communication facilities, and surface disturbance associated with recreation and mineral exploration and low level development would destroy naturalness, outstanding opportunities for solitude and primitive recreation, scenic, geological, and ecological values in each of the canyons and along the flanks of the mountain. Overall, this would result in a loss of wilderness in 75 percent of the WSA.

The highest mineral development potential is located in the core mountain area of the WSA, generally above 6,500 feet in elevation. Large scale mining activity in this portion of the WSA would eliminate the wilderness values of the entire WSA.

The high elevation peaks within the WSA are projected to have at least two communication facilities which would degrade naturalness on 5 acres and influence the high scenic values of this core area of 8,000-10,000 acres within the WSA over the long-term.

Impacts of livestock facility development in lower elevations and motorized recreation use in the area would further degrade wilderness values over the long-term. A projected 10 - 20 miles of new access roads could result over the long-term, with motor vehicle use less than 250 vehicles per year.

Conclusion. The high quality wilderness values of the Sierra Ladrones would be degraded in over 75 percent of the WSA in the long-term due to resource use, exploration, and development.

2. Impacts on Exploration and Development of Uranium, Copper, Nickel, Cobalt, High-Calcium Limestone, Silver, Lead, Zinc, and Barite

Under the No Wilderness Alternative, there would be no impacts on exploration and development of uranium, copper, nickel, cobalt, high-calcium limestone, silver, lead, zinc, and barite.

3. Impacts on Livestock Grazing Use Levels

Livestock grazing use levels would not be impacted. Motorized access to livestock facilities would not be restricted as under wilderness designation. If mineral development were to occur, grazing would be temporarily removed from up to 200 acres within the WSA.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

Public involvement in the wilderness inventory and study process has generally indicated strong support for designation of a Sierra Ladrones Wilderness Area or an alternative designation including primitive area status. This support has a history dating at least to the late-60's. Although the support tends to be centered in Albuquerque and Santa Fe, New Mexico, it is Statewide in scope.

There was also public support for a WSA larger than that which was selected by the BLM in the New Mexico Wilderness Study Area Decisions, March 1980. This resulted in a successful appeal to the Interior Board of Land Appeals (IBLA). The IBLA decision added approximately 6,000 acres of land south of the Rio Salado to the Sierra Ladrones WSA. These additional lands have been evaluated and are included in this report.

The most commonly cited reasons in support of wilderness designation included the WSA's outstanding solitude and natural values, its recreation potential, and proximity to Albuquerque, Belen, and Socorro, New Mexico, combined with high scenic, wildlife, and ecological values.

Opposition to wilderness designation has been intense from local mining interests who feel designation would adversely impact mineral prospecting and development. Most area grazing permittees are also opposed to wilderness designation. They feel designation would adversely affect livestock operations on those portions of their respective allotments located within the WSA.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 27 letters were received. Twenty-one respondents favored wilderness designation for Sierra Ladrones, four were opposed, and two provided information but neither favored or opposed designation. Supporters of wilderness designation cited the WSA's wilderness values, which are felt to be of such high quality that the area is one of the best BLM wilderness candidates in the State. These values are further enhanced by the WSA's location adjacent to the Sevilleta Land Grant, which is managed as a natural area and wildlife refuge. Eighteen of the respondents also suggested enlarging the suitable recommendation to include additional lands north of the Rio Salado.

The alternative boundary proposed in public comments represents a new alternative which was not considered in the draft version. This new alternative has been evaluated in Chapter VI, Alternatives and Impacts, under the Amended Boundary Alternative.

The primary reasons for opposition to wilderness designation centered around the WSA's potential for mineral discovery and development. It was also noted that although Sierra Ladrones has a high favorability for economic mineral deposits, because a quantifiable value cannot be placed on such deposits and their development, it would appear that they are not given

adequate weight in the resource allocation process. It was further noted that the inability to ascribe a specific value to a potential energy or mineral source should not cause it to be ignored in land planning.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Sierra Ladrones WSA and recommended the entire WSA plus additional adjacent acreage. Twenty comments were directed to the Sierra Ladrones WSA with 17 favoring and 3 opposed to wilderness designation.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Sierra Ladrones WSA by 32 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The Coalition proposal differs only slightly from the BLM recommendation. Acquisition of the additional State and private lands along the boundaries of the WSA and the subsurface rights on the 560 acres of split-estate land would minimize the potential for future problems."

Response: The Coalition's proposal differs only slightly from the BLM's recommendation. If, at some future date, the BLM acquired either the 2,635 acres of State and 1,245 acres of private lands proposed by the Coalition and determined that these lands possessed wilderness values, BLM would formally study these lands. Depending on the results of the study, BLM would make a recommendation either in favor of or opposed to wilderness designation.

APPENDIX 26

STALLION WSA (NM-020-040)

I. GENERAL DESCRIPTION

A. Location

The Stallion Wilderness Study Area (WSA) is located in Socorro County in central New Mexico. The WSA is situated 14 air miles east, northeast of the community of Socorro.

The U.S. Geological Survey (USGS) topographic maps covering the WSA are the Bustos Well, Sierra de la Cruz, Sierra Larga North, and Sierra Larga South, New Mexico quadrangles at the 7½-minute scale.

B. Climate and Topography

The WSA is located on the eastern edge of the Chihuahuan Desert. Maximum summer temperatures range from 90° to 100°F. Winter temperatures are generally mild during daylight hours (40° to 50°F) and moderately cold at night (15° to 30°F). Spring and fall temperatures tend to be mild. The spring season typically is accompanied by winds ranging from 10 to 40 miles per hour.

Precipitation averages 12 to 14 inches per year. Over half the annual rainfall is received during the summer thundershower season (July through September). A third of the year's precipitation usually falls during the winter months (December through March). The remaining moisture, normally 10 percent or less, is received in the spring and fall months.

The WSA is characterized by a semiarid mountainous environment which varies from the near vertical rock escarpments and eroded, rugged flanks of the Sierra Larga to rolling pinyon-juniper and grass covered hills. Elevations range from 5,500 feet to 7,100 feet with a maximum relief of 1,600 feet.

C. Land Status

The WSA includes 24,238 acres of public land. State inholdings within the WSA total 1,280 acres. There are no private inholdings within the WSA. (See Map 26-1 for land status within the WSA boundary.)

No rights-of-way are located within the technical boundaries of the WSA. However, two rights-of-way corridors to accommodate U.S. Army White Sands Missile Range (WSMR) access routes and facilities extend into the WSA.

STALLION

D. Access

Primary legal access to the WSA is provided by Interstate 25, then north on County Road 146 and BLM Road 2109.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The No Wilderness Alternative is the proposed action for the Stallion WSA. Naturalness of the area is extensively impacted by roads and ways and numerous rangeland improvements. The area has high value for semi-primitive motorized recreation, particularly hunting. Managing for other resource uses such as livestock grazing, mineral exploration and development, off-road vehicle use, and motorized hunting outweigh the benefits of managing the area for it's wilderness values.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside		Reasons for Not Including this Alternative
None for this WSA		
Impacts Raised and Set Aside		Reasons for Not Conducting A Detailed Analysis
Impacts on the following threatened or endangered species: American Peregrine Falcon		Although peregrine falcons may occur in the WSA, there are no reduced sightings in the area. The U.S. Fish and Wildlife Service has concurred with BLM's finding of no effect on species Federally-listed or proposed for listing as threatened or endangered.
Impacts on Wild Horses		Wild horses were not selected for detailed analysis because the herd occupies only a portion of the WSA and no impacts to wild horses were identified.
Alternatives Selected for Detailed Analysis		Reasons
All Wilderness		24,238 acres were identified during the inventory as having wilderness values.
No Wilderness (Proposed Action)		The No Action Alternative required by NEPA.
Environmental Issues Selected for Detailed Analysis		
Three primary issues of concern were identified for the Stallion WSA. These include impacts on exploration of copper resources, impacts on wilderness values, and impacts on livestock grazing use levels.		
The Stallion WSA has moderate potential for copper on 24,200 acres. Concerns regarding mineral potential include restrictions to mineral exploration under wilderness designation, as well as potential impacts to the naturalness of the Stallion WSA resulting from mineral exploration if it is not designated as wilderness.		
The wilderness values issue is required by the BLM Wilderness Study Policy. One of the major attractions of the Stallion WSA is it's diversity and ruggedness. The naturalness of the WSA is impacted by 20 miles of vehicle ways, 22 miles of fence, and an electronic tracking station/microwave reflector located on the highest points in the Sierra Larga.		
Concerns regarding livestock grazing use levels include the inconvenience to livestock operators from vehicle restrictions under wilderness designation, as well as an expected increase in vandalism and harassment to livestock if it is not designated wilderness.		

STALLION WSA (NM-020-040)

PROPOSED ACTION - NO WILDERNESS ALTERNATIVE

Legend

— WSA BOUNDARY

Land Status*

BLM

PRIVATE

STATE

MAP 26-1 LAND STATUS

Scale: 1/2 inch = 1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.

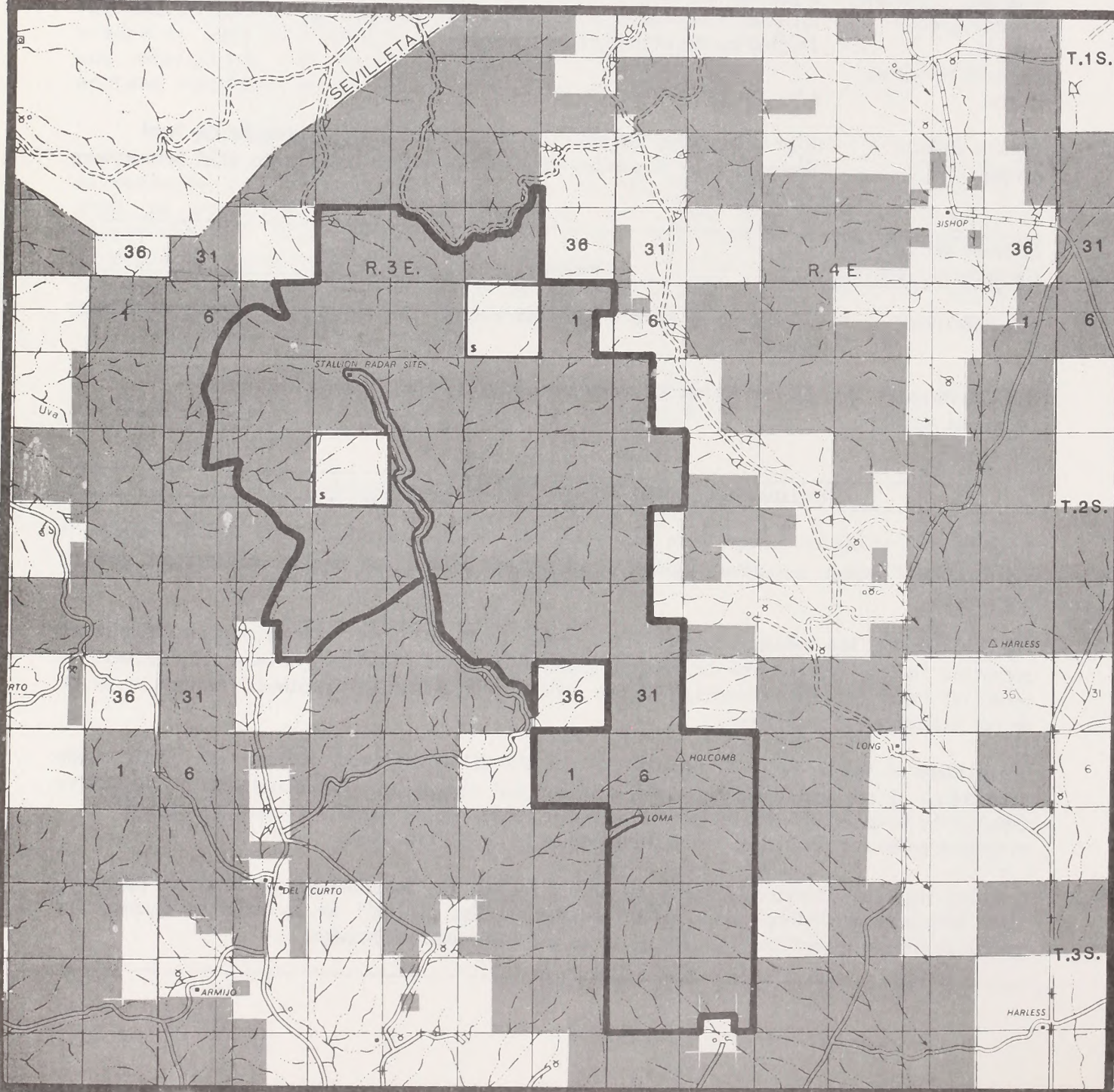


TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	No Wilderness (Proposed Action)
°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 24,238 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	°MANAGE 24,238 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-20 miles of existing vehicular ways would be closed to vehicle use. This vehicle use is a combination of recreational and livestock purposes and estimated at less than 250 vehicles per year.	-Vehicle use would be allowed to continue on 20 miles of existing vehicle ways. Because of motorized recreation activities, livestock developments, and energy and mineral exploration and development over the long-term, an additional 5-10 miles of road are projected for the central and western portions of the WSA. Total vehicle use is estimated at less than 350 vehicles per year.
-Require permits for vehicular access to maintain 5 dirt tanks, 1 windmill, 2 storage tanks, and 2 1/5 miles of pipeline.	-Permits for vehicle access to maintain rangeland developments would not be required.
-Current livestock grazing use levels of approximately 7 head per section per year would continue.	-Current livestock grazing use levels of approximately 7 head per section per year would continue with additional rangeland development projects constructed over the long-term. Approximately 1-5 miles of new roads are projected over the long-term.
-24,238 acres would be closed to energy minerals leasing, exploration, and development.	-24,238 acres would be open to energy minerals leasing and mining claim location including 24,200 acres of moderate potential for copper. Anticipated exploration would result in a total of 20 to 40 drill holes. Low level development would result in an additional 40 to 80 acres of surface disturbance and 1 to 5 miles of new access roads.
-24,238 acres would be closed to mining claim location. The closed area includes 24,200 acres with moderate potential for copper.	
-Reasonable access would be granted to WSMR personnel to recover missile debris which might impact in the area.	-Access would be granted to WSMR personnel to recover missile debris which might impact in the area. Up to two additional instrumentation and tracking sites could be authorized.
-Attempts would be made to acquire 1,280 acres of State land inholdings.	-No special attempts would be made to acquire State land inholdings.

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues	
	Impacts On Wilderness Values	Impacts On Exploration of Copper Resources
All Wilderness (24,238 acres)	The Stallion WSA's pinyon and juniper covered mountains and opportunities for solitude, hiking, camping, and hunting would be maintained. There would be a 10 percent improvement in the quality of naturalness through closure of 20 miles of vehicle ways.	Based upon past interest in the area, no impact on exploration would occur in the short-term. In the long-term, mineral exploration and possible development of 24,200 acres with moderate potential for copper would be precluded.
No Wilderness (24,238 acres)	Wilderness values, particularly naturalness, would be adversely affected by copper, rare earth, and other mineral exploration and development. Up to 60 test and development holes would be drilled resulting in approximately 40-80 acres of surface disturbance. Up to 10 miles of existing ways would be upgraded to roads and 5-10 miles of new roads constructed in support of mineral exploration. Development of roads would create approximately 6 units of less than 5,000 acres in size. Solitude opportunities would be eliminated and naturalness would be reduced throughout the area as a result of the significant reduction in the size and marginal quality of the natural units.	No impact.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Stallion WSA is located within the central area of the Joyita uplift. This series of hills, mountains, and cuernas forms the highlands between the Rio Grande rift to the west and the Jornada del Muerto Basin to the east. The Joyita uplift merges into the Los Pinos uplift and Chupadera platform to the north, and the Loma de las Canas uplift to the south.

Rock units present in the WSA range in age from Permian to Triassic. The Permian age Yeso formation, Glorieta sandstone, and San Andres limestone are present throughout the WSA. These formations consist mainly of limestone, shale, sandstone, siltstone, and gypsum. The siltstone, shale, and sandstone of the Triassic age Dockum formation crops out in the southeastern and southwestern portions of the WSA.

B. Water

The western portion of the WSA is located in the Rio Grande Basin and the eastern portion lies in the Jornada del Muerto Basin. There are no permanent streams or surface water bodies within the WSA. However, the normally dry arroyos occasionally carry storm runoff to the Rio Grande immediately after rainfall within their respective drainage areas. Periods of flow are short and may be widely spaced in time due to intermittent and sporadic rainfall patterns. Runoff averages 0.1 inches per year.

The only developed ground water source within the WSA is a well with a windmill. No information is available on the water quality of this well. Therefore, information from New Well, which is located just outside the western boundary of the WSA, will be used as representative of the WSA. New Well was drilled to a depth of over 500 feet. Analysis of ground water indicates it is suitable for livestock watering purposes.

C. Soils

The majority of the Stallion WSA is underlain by limestones over sandstones. Approximately 60 percent of the soils occur on limestone. On mesa tops and hills, soils are shallow to moderately deep and gravelly with small inclusions of deep loamy soils in small valleys and swales.

Twenty-five percent of the soils are shallow to moderately deep loamy soils over gypsum. Some of the gypsum areas on the eastern side of the WSA fall into the badland type.

The remaining 15 percent of the WSA has moderate to deep loamy soils that occur in the swales and lower areas.

D. Vegetation

1. General

The vegetation of the WSA is typical of the upper Chihuahuan Desert at the northern extreme of its range. Four vegetation types have been identified: pinyon-juniper, grassland, desert shrub, and wasteland.

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The pinyon-juniper type dominates the WSA with 94 percent of the WSA classified as this type. One-seed juniper is the aspect vegetation, comprising 3 to 20 percent of the composition. Pinyon, the codominant tree species, varies in composition from a trace to 5 percent. The understory vegetation is dominated by warm-season grasses. The grama grasses are the most prevalent, sometimes making up to 70 percent of the composition on the site. Blue grama and black grama have the highest composition, followed by sideoats grama and hairy grama. Of lesser frequency are various other warm-season grasses, including purple muhly, galleta, Fendler threeawn, ring muhly, sand dropseed, and spike dropseed. Cool-season grasses include silver bluestem, Indian ricegrass, wolftail, bottlebrush squirreltail, and New Mexico feathergrass. Some areas classified as pinyon-juniper, that exist on soils with a high gypsum content, are dominated by gypgrass. Broom snakeweed is the main half-shrub component for the pinyon-juniper type, comprising up to 30 percent of the composition. Other shrubs and half-shrubs present include datil yucca, hairy mountain mahogany, feather peabush, Mormon tea, littleleaf sumac, squawberry, mariola, prickly pear, and ocotillo. In gypsum soils, coldenia is the dominant plant species. Forbs present include ironplant goldenweed, Rocky Mountain zinnia, globemallow, hog potato, aster, and spectaclepod.

The grassland type which covers 2 percent of the WSA is represented by two subtypes. The short grass subtype is located in the northwestern and southeastern portions of the WSA. This subtype is dominated by the grama grasses, and also includes spike and sand dropseeds, burrograss, gypgrass, fluffgrass, ring muhly, and bush muhly. Shrubs present are cholla, datil yucca, slender gray sagebrush, and Mormon tea. Forbs include ironplant goldenweed, globemallow, desert holly, and Russian thistle. The mid-grass subtype is characterized by alkali sacaton. Giant sacaton also occurs in the overflow drainages of the WSA, representing 26 to 88 percent of the composition. Other grasses present are burrograss, blue grama, galleta, vine-mesquite, and mat muhly. Forbs include Russian thistle, desert holly, white horse nettle, and threadleaf groundsel. The only shrub of significant composition in this subtype is broom snakeweed. However, traces of one-seed juniper, fourwing saltbush, cholla, and Apacheplume are present.

The desert shrub type represents 2 percent of the WSA. This type is located in the southeastern and northwestern portions of the WSA. Dominant shrub species are cholla and squawberry. Other shrubs include winterfat, creosote, broom snakeweed, coldenia, slender gray sagebrush, and Mormon tea. Grasses are represented by the gramas, spike dropseed, burrograss, ring muhly, sand muhly, gypgrass, fluffgrass, alkali sacaton, and galleta. Forbs include ironplant goldenweed, globemallow, and wild buckwheat.

Approximately 2 percent of the WSA is classified as wasteland. This area is primarily found on the eastern and northwestern flanks of the Sierra Larga, and is characterized by steep slopes and sparse juniper.

2. Rare Plant Species

The U.S. Fish and Wildlife Service (FWS) has not listed any threatened or endangered plant species that may occur in the WSA.

E. Wildlife

1. General

Three Standard Habitat Sites (SHS's) have been identified within the WSA. The habitat sites are based on the combination of dominant vegetation and landform. The SHS's support 169 wildlife species, which include 50 mammal species, 28 reptile and amphibian species, and 91 resident and migratory bird species. A complete list of wildlife species to be found within the WSA is on file at the Socorro Resource Area Office.

Big game species indigenous to the WSA are mule deer and pronghorn. Mule deer in the WSA's core mountain area are abundant relative to the surrounding region. Deer densities for this portion of the WSA may range as high as three animals per square mile. Pronghorn are not abundant in the WSA.

The most common predator is the coyote. The rocky slopes and bluffs also provide habitat for bobcat and gray fox. Common small mammals include desert cottontails, prairie dogs, black-tailed jackrabbits, white-throated woodrats, deer mice, and ground squirrels.

The mountainous topography and numerous rock outcrops are attractive to birds of prey. Commonly sighted birds include red-tailed hawks, sparrowhawks, horned larks, pinyon jays, and ravens.

Reptiles likely to be encountered are the collared lizard, eastern fence lizard, bullsnake, and western diamond-backed rattlesnake.

2. Threatened or Endangered Fauna Species

The FWS furnished the BLM information about one Federally-listed endangered animal species, the American peregrine falcon, which may occur in the WSA. This species was included in a biological assessment (BLM 1982) which revealed that the WSA provides poor quality nesting habitat and there are no current or historically occurring eyries. However, potential habitat exists for supporting migrating individuals. The biological assessment and related correspondence are on file at the Socorro Resource Area Office.

F. Visual

The scenic quality of the WSA is considered moderate. Landforms range from grassland to rolling pinyon-juniper savannah and forest to steep box canyons and rugged multi-colored badlands.

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G. Cultural

Four cultural sites are currently recorded within the WSA. They range from lithic scatters to a historic structure dating from the first quarter of the twentieth century. Seventy additional sites are recorded within a 12-kilometer radius of the WSA. The heavy concentration of recorded sites on adjoining lands suggests a high probability for the occurrence of unrecorded sites within the WSA.

H. Air

Generally, the quality of air within the Stallion WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resource potential of the lands within the WSA is shown on Table 3 and Map 26-2.

1. Energy Minerals

As of April 15, 1986, there were no oil and gas leases in the WSA.

a. Oil and Gas

Paleozoic rocks favorable for the generation of oil and gas underlie the WSA, but faulting probably precludes significant entrapment of petroleum. The WSA is considered to have low potential for the production of these resources.

b. Uranium

Uranium is known to occur in Paleozoic limestones and may occur in Late Tertiary valley-fill sediments in the area surrounding the WSA. Paleozoic limestones crop out in the WSA but past prospecting has not disclosed any uranium occurrences. Late Tertiary sediments do not crop out in the WSA. The WSA is considered to have low potential for the discovery of uranium deposits.

2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA.

a. Copper

Copper deposits in Permian red beds are known to occur in a belt extending from Scholle to Carthage passing through the WSA. Some of the deposits were mined in the past but have been uneconomic in recent years. The red beds crop out extensively in the WSA. For this reason, the WSA is considered to have moderate potential for the occurrence of copper mineralization.

b. Gypsum

The Permian age Yeso formation, which contains gypsum, is found in the northern and western portions of the WSA. The deposits are considered to have a low potential for use because of lack of local demand and the availability of more pure deposits in other parts of central New Mexico.

c. Barite, Fluorspar, Lead, Zinc

Deposits of these minerals are known to occur along faults within Precambrian rocks and the Madera limestone in the area surrounding

STALLION WSA (NM-020-040)

PROPOSED ACTION - NO WILDERNESS ALTERNATIVE

Legend

— WSA BOUNDARY

Land Status*

BLM

PRIVATE

STATE

MAP 26-2

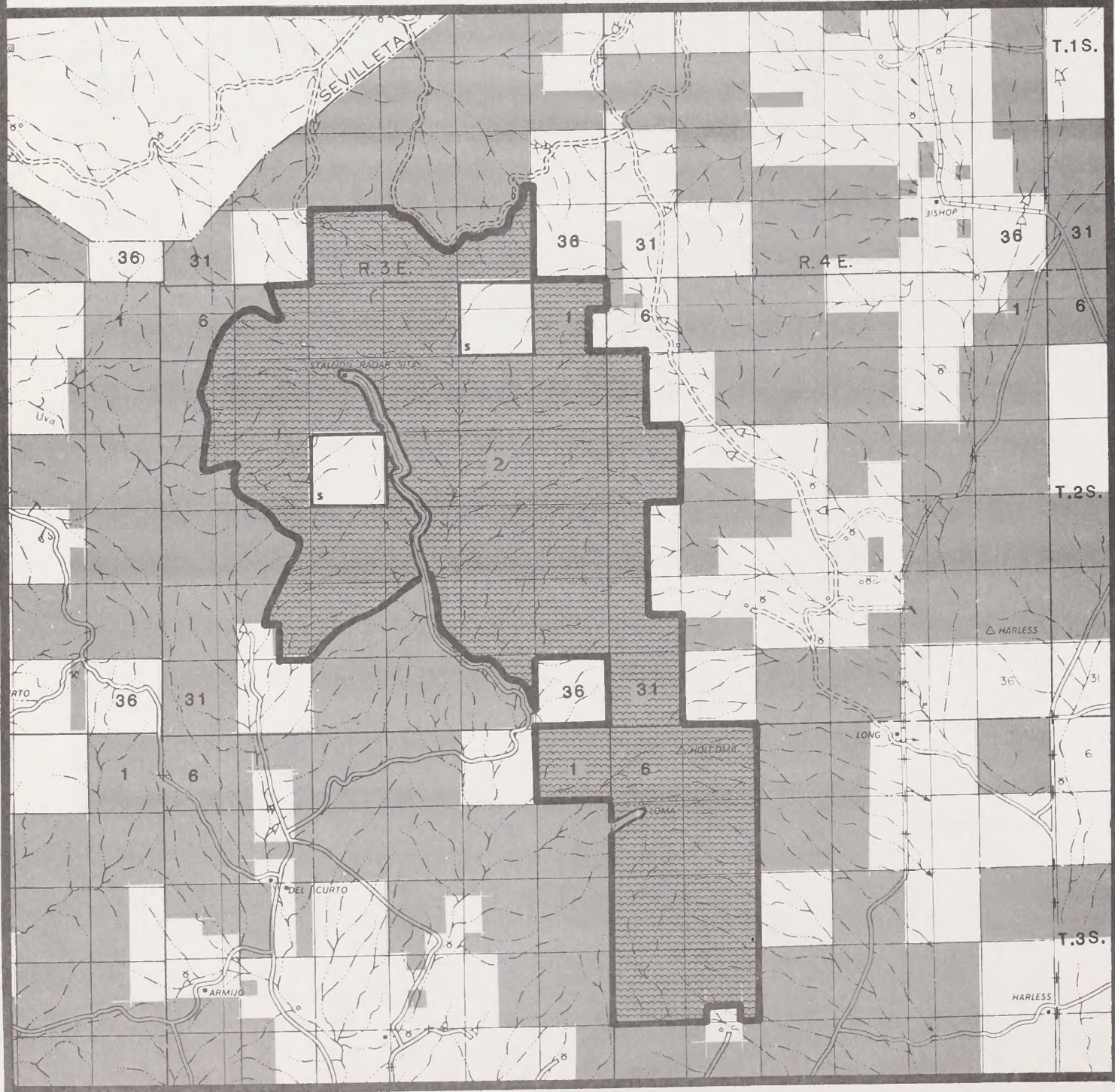
MINERAL RESOURCE POTENTIAL*

Copper

Scale: 1/2 inch = 1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.



the WSA. The WSA contains Paleozoic limestones, but it is not intensely faulted, and no occurrences of these minerals are known within or near its borders. For these reasons, the WSA is considered to have low potential for the occurrence of such deposits.

d. Limestone

The WSA has potential for the development of limestone. The WSA is partly underlain by the San Andres limestone, which may be of high enough purity for use as agricultural lime or in the manufacture of cement. These deposits are considered to have a moderate potential for development if local demand for the material occurs. However, because there has been no interest in the limestone, the potential is considered low.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE STALLION WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Mesozoic and Paleozoic marine and continental sedimentary rocks	Low	--
Uranium	Stratiform deposits in Paleozoic limestones	Low	--
Nonenergy Minerals			
Copper ^a /	Stratiform deposits in Permian red beds	Moderate	24,200
Lead ^a /, Zinc ^a /, Fluorspar ^a /, Barite	Vein and replacement deposits in Paleozoic rocks	Low	--
Gypsum	Permian evaporites within the Yeso formation	Low	--
Limestone	Permian San Andres marine limestone	Low	--

Notes: *Acreage was not calculated for areas with low potential.

^a/Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

B. Watershed

The WSA is located almost entirely in the Loma Watershed except for four sections which lie in the Storm Watershed. The WSA is composed of

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differing landforms which include escarpments, box canyons, rolling foothills, mountains, and badlands. The majority of soils are coarse textured with moderate to slow permeability. Approximately 92 percent of the WSA falls in a slight to moderate erosion class and 8 percent in the critical to severe erosion class. There are no water control structures or land treatments within the WSA.

C. Livestock Grazing

1. Allotments

Parts of four grazing allotments lie within the Stallion WSA. All four allotments are run as cow-calf operations (see Table 4).

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Tecolote Draw 1280	15,939	2,388	9,100	1,361	57%
Bordo Atravesado 1254	20,857	2,714	7,091	923	34%
Sierra Larga 1260	12,608	2,112	4,659	781	37%
Coyote Spring 1266	11,548	1,512	3,388	438	29%
TOTAL			24,238	3,503	

2. Ranch Management

Permittees periodically inspect and maintain developments with the use of motor vehicles. Fence maintenance is sometimes performed by horseback.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name	Type of Development
Tecolote Draw	4 miles of fence 1 dirt tank 2 miles of pipeline with 2 drinking troughs
Bordo Atravesado	3 dirt tanks 11 miles of fence 1/5 mile of pipeline with 2 storage tanks
Sierra Larga	1 dirt tank 3 miles of fence 1 windmill
Coyote Spring	4 miles of fence

Note: ^{a/}Information shown in tables reflects only Federal acres and animal unit months (AUMs), and rangeland developments on public land.

3. Potential Rangeland Developments

One rangeland development involving maintenance of an existing windmill has been proposed within the WSA.

D. Timber Harvest

Approximately 94 percent (23,000 acres) of the Stallion WSA is classified as nonproductive forest land (New Mexico Forest Inventory 1975). These lands are stocked primarily with juniper, with pinyon pine as a minor component.

Because the area has never been managed for forest products, no information on stand parameters is available. However, field observation provides the basis for the following judgment of the value of forest resources within the WSA.

Site quality is low. This is apparent from the low heights of trees (10 to 18 feet) and the shallow, alkaline soils present. Wide spacing and an estimated 10-percent crown closure indicates that stocking levels are marginal for production of wood products. Poor conformation, inherent in understocked stands, also limits the usefulness of the potential product. Age class structure is unknown but is certain to be unbalanced due to the preponderance of overmature individuals and a lack of regeneration.

The potential for sawtimber production on a sustained yield basis does not exist within the WSA. Production of posts and poles is of marginal value due to the poor conformation of the juniper. At present, fuelwood production is considered marginal due to the lack of physical access to the majority of forested lands and the availability of alternate cutting areas (i.e., Forest Service administered land).

E. Recreation

The WSA is located within 2 hours driving time of the City of Socorro and is visible from the community and much of the Rio Grande Valley. Existing recreational use is moderate, primarily restricted to deer hunting during the fall.

Potential opportunities for primitive recreational use within the WSA include exploration, horseback riding, day hiking, backpacking, natural history activities such as birdwatching, rock hunting, and landscape-nature photography, and deer hunting.

The recreational use of the WSA is not expected to increase within the foreseeable future.

The Stallion WSA is within the Stallion Planning Area. In this Planning Area, ORV use is limited to designated roads and trails. ORV use in the WSA is increasing on an annual basis. The WSA has become a very popular area for motorized recreational deer hunting.

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F. Education/Research

The WSA is not currently being utilized for any known educational or research purpose. There may be educational and research potential in the WSA for cultural resource studies.

G. Wildlife

Wildlife habitat could be improved through vegetation manipulation and additional water sources. However, no specific actions are planned for the area at present. The WSA has not been identified by the New Mexico Department of Game and Fish for reintroduction of any species.

H. Other--Wild Horses

The Bordo Atravesado Wild Horse Management Area lies partially within the Stallion WSA. A wild horse herd has been present in this area since at least the early 1950's.

The present herd consists of approximately 27 animals with annual productivity of about 15 percent. The herd has a balanced sex ratio and age structure appears to be normal. Levels of mortality are unknown but appear to be low. Mortality is probably related to decimating factors such as predation, accidents, and adverse weather conditions rather than welfare factors (i.e., availability of water).

Management activities have consisted of inventory, round-up, and adoption. At this time management objectives are to maintain and perpetuate a viable herd of 32 wild horses with stable population characteristics, and to protect and enhance the wild free-roaming nature of the animals and retain compatibility with other uses of the range.

I. Other--White Sands Missile Range (WSMR) Safety Extension Area

The Stallion WSA is located entirely within the WSMR Safety Extension Area. This area was established by Cooperative Agreement between the United States Army and the BLM. The agreement requires periodic evacuation of the Safety Extension Area due to its proximity to targeting locations within the Missile Range proper. The WSMR has indicated that an increase in planned testing activities will require additional instrumentation and tracking sites in the Safety Extension Area.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The WSA is generally natural in appearance, however, a number of intrusions detract from the quality of the area's naturalness. Intrusions include 5 dirt tanks, 22 miles of barbed wire fence, 1 windmill, 2 miles of pipeline with 2 drinking troughs, 1/5 mile of pipeline with 2 storage tanks, 30 prospect pits, and 20 miles of ways. Every section within the WSA either borders or contains an intrusion of some kind. In addition to these intrusions, WSMR has remnants of an electronic tracking station and a microwave reflector structure on the highest points in the Sierra Larga. Although excluded from the WSA, these intrusions and the roads to them are visible from a number of vantage points within the area. About 7 miles of substantially noticeable ways located in the central portion of the WSA detract significantly from the naturalness of the area. A vehicle way bladed up the escarpment in the northern portion of the WSA is substantially noticeable in that area and receives regular and continuous use by ranchers and recreationists.

The naturalness values of the WSA as a whole are not considered outstanding due to the amount and location of various intrusions within and adjacent to the WSA. However, there are area-specific exceptions within the WSA to this general assessment, but these areas are small, generally less than 3,000 acres.

b. Solitude

The WSA is isolated and rugged, especially the Sierra Larga Ridgeline. The area's vegetational screening and geographic setting contribute to its outstanding solitude opportunities. The airspace over the WSA is utilized by the military for aerial training maneuvers with high performance jet aircraft. The frequent noise associated with these maneuvers is not conducive to a quality solitude experience.

c. Primitive and Unconfined Recreation

The WSA can provide visitors with outstanding opportunities to experience a pinyon-juniper mountain environment suited to day hiking, deer hunting, horseback riding, and exploration. The WSA is most attractive to these recreational pursuits during the fall, winter, and spring months. Historically, the majority of recreational use consists of deer hunting. Access by hunters is predominantly by vehicle.

2. Special Features

The WSA supports a small herd (25-30 animals) of wild horses, which in the opinion of some individuals, enrich the WSA's aesthetic and faunal resources.

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3. Multiple Resource Benefits

The WSA contains a variety of natural resource values as a result of its undisturbed character. Congressional designation of the WSA as wilderness would provide a greater degree of long-term protection for these natural values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Stallion WSA lies near the northern extreme of the Chihuahuan Desert and the southern edge of the Colorado Plateau Provinces as identified in the Bailey (1976) - Kuchler (1966) Ecoregion Classification System.

Potential natural vegetation consists of 3,000 acres of grama-tobosa shrubsteppe in the Chihuahuan Desert and 21,238 acres of juniper-pinyon woodland mosaic in the Colorado Plateau. However, because of the WSA's geographic location between the Chihuahuan Desert and Colorado Plateau Provinces, these areas are not clearly distinctive. Instead, the two tend to integrate into one another to varying degrees.

b. Distance From Population Centers

Albuquerque and Las Cruces, New Mexico, identified in the 1980 census as a Standard Metropolitan Statistical Area (SMSA), are located within 4 hours driving time of the WSA. El Paso, Texas is located within 5 hours driving time of the WSA.

B. Manageability

To be recommended for wilderness designation, the Stallion WSA must be capable of being effectively managed as wilderness. Manageability is a judgment made by the BLM after considering such factors as State inholdings, valid existing rights, and the overall land ownership pattern.

Grandfathered livestock operations in the WSA are compatible with wilderness management and required access for the maintenance of existing rangeland developments and are not expected to create problems for wilderness management.

The Stallion WSA lies within a Safety Extension Area used primarily as a safety impact zone in support of several missile test programs conducted at White Sands Missile Range (WSMR). The Safety Extension Area must be evacuated of all human inhabitants during missile firings. The availability of the Area is required for an indefinite period of time to support future military programs requiring a test range in excess of that provided by the main WSMR. The WSMR requires reasonable access to the Safety Extension Area to recover missile debris. This access could be either by vehicle or helicopter depending on the situation. However, no impacts of this nature have occurred within the WSA to date.

Two instrumentation sites are technically corridorred out of, but surrounded by the WSA. Both sites are currently inactive, however, the northern site was used as recently as May 1987. At this time, future expansion of these sites is not anticipated. However, wilderness management in these areas would be more difficult due to the noticeable visual impacts associated with these intrusions.

Inholdings within the WSA include 1,280 acres of State land. Acquisition of these inholdings, through voluntary exchange, would enhance manageability.

A substantially noticeable, bladed way in the central portion of the WSA receives frequent motor vehicle use and has historically been used by hunters and ranchers. Access to grandfathered rangeland improvements and maintenance would complicate management. Also, frequent wilderness patrols would be required to implement a motor vehicle closure.



Overview of the Stallion WSA.

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V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 24,238 acres of public land within the Stallion WSA would be recommended suitable for wilderness designation. (See Map 26-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981).

1. Impacts on Wilderness Values

Wilderness designation would provide long-term Congressional protection for the wilderness values present in the area. Wilderness management of the area would maintain the area's naturalness, outstanding opportunities for solitude, and outstanding opportunities for dayhiking, nonmotorized deer hunting, and horseback riding.

Restricting surface-disturbing and mechanized activities associated with copper exploration, rangeland activities, ORV use and motorized hunting, and allowing only permitted motorized access by the permittee would provide long-term protection for the current natural systems.

Conclusion. Wilderness management would maintain the area's naturalness, outstanding opportunities for solitude, and outstanding opportunities for day hiking, deer hunting, and horseback riding by restricting surface disturbing activities. A 10 percent improvement in the quality of naturalness would result from closing 20 miles of vehicle ways.

2. Impacts on Exploration of Copper Resources

Although the entire Stallion WSA (approximately 24,200 acres) has moderate potential for copper, there are no existing mining claims in the area and little exploration has occurred in the past. In the long-term, wilderness designation would preclude determining the full copper potential and possible development of the area. However, based on current information, wilderness designation would not result in lost production of copper resources in the WSA because most deposits of copper in the area around the WSA tend to be small and uneconomically feasible to mine.

3. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 7 CYL per section (approximately 3,503 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated wilderness. The facilities which have been installed within the WSA to support this level of livestock grazing use include 22 miles of fence, 5 dirt tanks, and 2 1/5 miles of pipeline. New rangeland facilities are not planned at this time. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy,

with permits required when motorized vehicles or equipment are used. Minor repairs to the fences would have to be accomplished on horseback.

Restriction of vehicular use, less than 250 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the entire 24,238 acres of public land within the Stallion WSA would be recommended nonsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III. The most probable uses of the area would be continued livestock grazing and possibly mineral exploration and woodcutting. Expansion of the two existing White Sands Missile Range facilities coridored out of, but surrounded by, the WSA may occur as well as the construction of new facilities and access roads to support WSMR activities. An increase in military flights over the area may also occur in the future. Motorized recreational use, especially for deer hunting, would continue throughout the WSA.

In the 24,238 acres not designated as wilderness, unavoidable adverse effects of the proposed action will result from future surface disturbance activities. Over the long-term, these activities will reduce the quality of the wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation. Also, cumulative short-term consumptive uses of this land will lead to long-term degradation of wilderness values. Nondesignation of the 24,238 acres as wilderness would leave this acreage available for development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

The wilderness values of the WSA would not be provided with long-term Congressional protection. Vehicular access and the probable future uses of the area could reduce wilderness values over the entire area in the long-term. Continuation of rangeland activities and associated low levels of motorized access would have a moderate impact on wilderness values. Off-road vehicle use would result in extended access routes and degradation of naturalness and opportunities for solitude and primitive recreation. A total of 30 miles of access routes, 10 of which would be new access routes, used by 250-350 vehicles per year, is projected over the long-term. Additionally, ORV use and mineral exploration would cause

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disruption of wildlife habitat, scenery, and vegetation. Woodcutting activities would reduce both the naturalness and solitude of the WSA over the long-term.

Conclusion. Over the long-term, the continued low to moderate level of use of motorized vehicles for rangeland activities, military related operations, off-road vehicle use, hunting, woodcutting, and mineral exploration and development would degrade wilderness values of the Stallion WSA. A complete reduction in the quality of naturalness, solitude, and primitive recreation opportunities is expected over the long-term due to the above described surface disturbing activities.

2. Impacts on Exploration of Copper Resources

There would be no impacts on exploration of copper resources under this alternative. Exploration could occur to allow for full determination of copper potential. The area would remain open to mining claim location.

3. Impacts on Livestock Grazing Use Levels

Under this alternative, grazing use levels are projected to remain the same and there would be no impacts to livestock grazing operations in the WSA.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report has been prepared with public input obtained by large mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the Statewide Wilderness EIS.

Public involvement in the wilderness inventory and study process has generally supported wilderness designation of the Stallion WSA. Reasons cited have concentrated on the WSA's remoteness coupled with its naturalness and solitude values.

Opposition to designation has been intense from several grazing permittees who feel they would be affected by wilderness status. Resource conflicts with grazing use, lack of wilderness characteristics, and conflicts with the White Sands Missile Range (WSMR) use of the Safety Extension Area were most often cited as reasons against wilderness designation.

WSMR personnel expressed concern that designation of Stallion WSA as wilderness could potentially conflict with military operations within the WSMR Safety Extension Area.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 18 letters were received. Ten respondents supported wilderness designation for the Stallion WSA. Reasons for this support included the wilderness values of the area as well as the topographic relief which results in scenic vistas and wildlife values. A number of respondents questioned the BLM's assessment of management difficulties resulting from the need to periodically evacuate the area for safety reasons.

Eight respondents were opposed to wilderness designation of the Stallion WSA. Mineral values including the geologic favorability for oil and gas, limestone, and copper, were most often cited as reasons. It was also noted that the biological features of the WSA are common to the region.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Stallion WSA and recommended wilderness designation for the entire WSA plus several thousand adjacent acres. Specific comments were directed to the Stallion WSA by 109 commentators, 108 of whom supported wilderness designation and 1 opposed.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Stallion WSA by 34 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

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Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The primary reasons behind the negative recommendation from the BLM appear to be the intrusions and the fact that the WSA lies within a White Sands Missile Range Safety Extension Area. The Coalition, as indicated above, feels that the impacts of the intrusions have been exaggerated. The BLM suggests a solution to the second problem: a permit system for visitors and appropriate signing. That people may not be able to visit the area for a few days out of the year certainly does not destroy its potential as wilderness. Furthermore, two other areas nearby, Jornada del Muerto and Sierra de las Canas, are within White Sands Missile Range Safety Extension Areas and the BLM has recommended both for wilderness designation.

The Coalition-proposed wilderness contains all of the WSA, an extension on the north to the boundary with Sevilleta National Wildlife Refuge, an extension to the southwest to add the diversity of the grassland there, and the State inholdings. The resulting area is large, rugged, and well-configured. The areas to the north and to the south of the cherry-stem (see map) would be viable wilderness areas individually even if they were not connected."

Response: The Stallion WSA was recommended unsuitable for wilderness designation due to a combination of reasons. A cherry-stem road penetrates 3 miles into the core of the WSA and leads to an abandoned communication facility. A second cherry-stem road in the southern portion of the WSA penetrates 1/2 mile into the WSA and also leads to an old communication facility. Both communication sites are located on prominent points along the main ridge line. The southern portion of the WSA also has limited opportunities for primitive and unconfined recreation and solitude due to its narrow configuration. In addition to the impacts of the roads, ways, communication sites, and other intrusions, the entire WSA contains moderate potential for copper. While the WSA is within the White Sands Missile Range Safety Extension Area, this is primarily a management concern and was not intended to be interpreted as being a reason for a unsuitable recommendation.

The public land recommended in the Coalition proposal outside the boundary of the WSA was dropped from further wilderness review in the New Mexico Wilderness Study Area Decisions document (November 1980). These areas lacked wilderness values such as naturalness, solitude, or primitive and unconfined recreation opportunities.

APPENDIX 27

VERANITO WSA (NM-020-035)

I. GENERAL DESCRIPTION

A. Location

The Veranito Wilderness Study Area (WSA) lies immediately east of the floodplain of the Rio Grande and 4 miles north-northeast of the community of Socorro within Socorro County, New Mexico.

The U.S. Geological Survey (USGS) topographic maps covering the WSA are the Lemitar and Mesa del Yeso, New Mexico quadrangles at the 7½-minute scale.

B. Climate and Topography

The WSA is located within the Chihuahuan Desert. Maximum summer temperatures range from 90° to 100°F. Winter temperatures are generally mild during daylight hours, 40° to 50°F, and moderately cold at night, 15° to 30°F. Spring and fall temperatures tend to be mild. The spring season is typically accompanied by winds ranging from 10 to 40 miles per hour.

Precipitation averages 10 inches per year. Over half the annual rainfall is received during the summer thundershower season (July through September). A third of the year's precipitation usually falls during the winter months (December through March). The remaining moisture, normally 10 percent or less, is received in the spring and fall months.

The WSA is dominated by mesa benchlands cut by numerous arroyos. The drainages are not large, with arroyo depth ranging from 20 to 200 feet. The arroyos generally run northeast to southwest and terminate in the Rio Grande floodplain. A series of low-lying, mountainous hills form the eastern boundary of the WSA. The WSA is bound on the northwest by the floodplain of the Rio Grande. Elevations range from 4,600 feet to 5,400 feet with a maximum relief of 800 feet.

C. Land Status

The WSA contains 7,206 acres of public land. There are no private or State inholdings within the area. (See Map 27-1 for land status within the WSA boundary.)

Approximately 796 acres of the Veranito WSA are located within the White Sands Missile Range (WSMR) Safety Extension Area. This area was established by Cooperative Agreement between the United States Army and the BLM. The agreement requires periodic evacuation of the Safety Extension Area due to its proximity to targeting locations within the Missile Range proper.

VERANITO WSA (NM-020-035)

Proposed Action - No Wilderness Alternative

Legend

— WSA BOUNDARY

Land Status

BLM

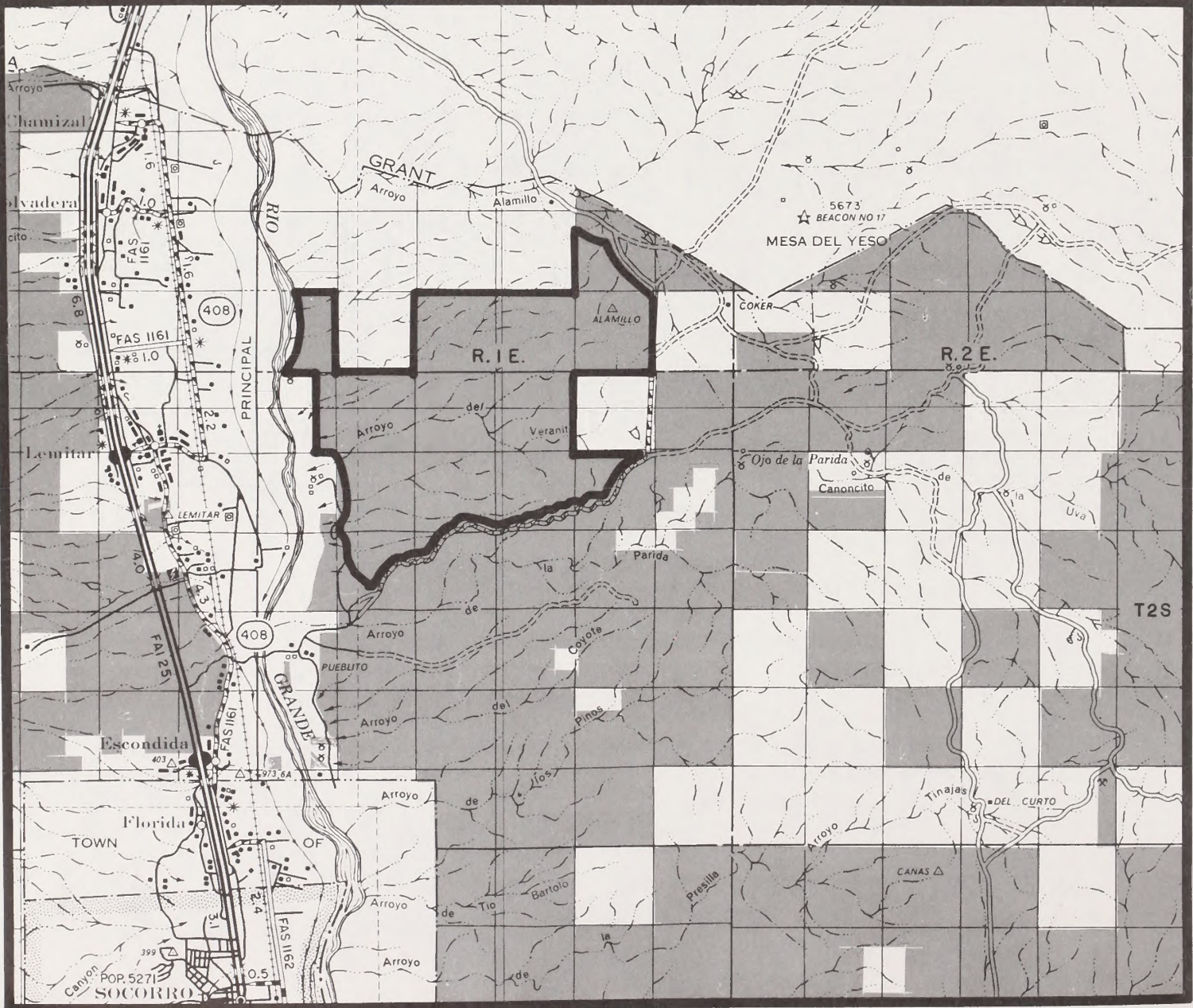
P PRIVATE

S STATE

MAP 27-1 LAND STATUS

Scale: 1/2 Inch=1 mile

Source:



D. Access

Primary legal access to the WSA is provided by Johnson Hill Road (County Road 146). This road is maintained by the County and is suitable for use by two-wheel drive vehicles.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The No Wilderness Alternative is the proposed action for the Veranito WSA because of the marginal quality of the area's wilderness values. The Veranito WSA marginally meets the required naturalness criterion. The opportunities for primitive recreation are not outstanding and supplemental values of the WSA are not significant.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
--	--

None for this WSA

Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
--------------------------------	--

Impacts on Saleable Minerals (Sand and Gravel)	Although there are 450 acres with moderate potential for sand and gravel in the WSA, the impacts on these resources would not be significant because similar materials are readily available elsewhere.
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Impacts on Cultural Resources	Cultural resources were not selected for detailed analysis because the potential that resources within the WSA would be developed is low. A detailed site-analysis would be required for any proposed surface disturbing activities.
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Alternatives Selected for Detailed Analysis	Reasons
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All Wilderness	7,206 acres were identified during the inventory as having wilderness values.
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No Wilderness (Proposed Action)	The No Action Alternative required by NEPA.
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Environmental Issues Selected for Detailed Analysis

Three issues of concern were identified for the Veranito WSA. These include impacts on geothermal and uranium exploration and development, wilderness values, and livestock grazing use levels.

The Veranito WSA contains moderate potential for geothermal (7,200 acres) and uranium resources (4,300 acres). Concerns regarding mineral potential include restrictions to mineral exploration under wilderness designation as well as potential impacts to naturalness and solitude of the Veranito WSA resulting from mineral exploration if it is not designated wilderness.

Concerns regarding livestock grazing use levels include the inconvenience to livestock operators from vehicle restrictions under wilderness designations, as well as an expected increase in vandalism and harassment to livestock if it is not designated wilderness.

The wilderness values issue is required by the BLM Wilderness Study Policy. The WSA contains outstanding opportunities for solitude but marginally meets the naturalness criterion. The Veranito WSA lacks outstanding opportunities for primitive recreation.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	No Wilderness (Proposed Action)
°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 7,206 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	°MANAGE 7,206 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-Close 5 miles of vehicle ways which currently receive low use (less than 25 vehicles per year). This use is primarily for livestock and recreational purposes.	-Vehicle use would be allowed to continue on 5 miles of vehicle ways and is projected to be less than 100 vehicles per year. An additional 5 miles of new access routes would occur over the long-term from recreational use, mineral and energy exploration, and livestock developments.
-Current livestock grazing levels of approximately 5 head per section per year (686 AUMs) would continue.	-Current livestock grazing levels of approximately 5 head per section per year (686 AUMs) would continue with additional rangeland development projects constructed in the long-term. Access to rangeland developments on roads and ways would be unregulated.
-Require permits for vehicular access to maintain 1 dirt tank and 3 1/10 miles of pipeline. No more than one trip per year is anticipated for vehicle access for significant maintenance. Casual vehicle use for inspections and minor repairs would be precluded.	-Vehicle use would be limited to existing roads and trails and to new roads that could be constructed under permitted activities.
-7,206 acres would be closed to energy minerals leasing. The closed area includes 1,100 acres with high potential and 6,100 acres with moderate potential for geothermal.	-7,206 acres would be open to mineral exploration including mineral leasing, mining claim location, and mineral material sales. This includes 7,200 acres of moderate geothermal potential, 4,300 acres of moderate uranium potential, and 450 acres of moderate sand and gravel potential. Exploration for geothermal resources could result in the drilling of 5 to 15 temperature gradient holes which could lead to low level development of 2 producing wells for direct use applications. Uranium exploration and low level development could result in a total of 20 to 40 drill holes in the area of moderate potential. Mineral material development could result in 5 to 10 sales per year. This activity is anticipated to result in the construction of 5 miles of roads throughout the WSA and surface disturbance of 110 acres.
-7,206 acres would be closed to mining claim location. The closed area includes 4,300 acres with moderate potential for uranium.	
-7,206 acres would be closed to mineral material sales. The closed area includes 450 acres with moderate potential for sand and gravel.	
-Reasonable access would be granted to WSMR personnel to recover missile debris which might impact in the area.	-Access would be granted to WSMR personnel to recover missile debris which might impact in the area.
-Fencing and prescribed burns on approximately 200-425 acres could be carried out as proposed in the Rio Grande Habitat Management Plan (HMP) if the projects would enhance wilderness values.	-Fencing and prescribed burns could be carried out as proposed in the Rio Grande Wildlife HMP on approximately 425 acres.

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues	
	Impacts on Wilderness Values	Impacts on Geothermal and Uranium Resources and Exploration
All Wilderness (7,206 acres)	Wilderness protection would maintain the area's natural values and outstanding opportunities for solitude. In addition, 415 acres of riparian habitat would be maintained in a natural condition.	Based upon past exploration in the area and the lack of mining claims, there would be no impact on exploration in the short-term. In the long-term, a total of two producing geothermal wells and up to 10 mineral material sales per year would be foregone.
No Wilderness (7,206 acres) (Proposed Action)	In the long-term, anticipated mineral exploration of up to 55 drill holes and 2 producing geothermal wells and up to 10 mineral material sales per year would totally degrade the area's naturalness and opportunities for solitude. Up to 100 acres of surface disturbance would result. An increased road network would result from upgrading up to 5 miles of vehicle ways and roads and construction of up to 5 miles of new roads. Due to the small size of the area and its marginal naturalness, surface disturbing activities would degrade opportunities for solitude and eliminate the naturalness of the entire WSA.	No impact.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Veranito WSA is located within the Socorro trough, a faulted tectonic depression filled with poorly-consolidated valley-fill deposits and forming a part of the Rio Grande rift. Records of past earthquakes and pediment surfaces offset by fault scarps indicate that tectonic forces are still active within the rift. Geophysical evidence indicates that a portion of an extensive sill-like magma body, occurring at depths of 18-22 kilometers, underlies the WSA.

Surface rocks in the WSA include mid-Tertiary volcanics of the Datil formation, late Tertiary valley-fill sediments of the Santa Fe formation, and Quaternary alluvium.

B. Water

The WSA is located within the Rio Grande Basin. There are no permanent streams or surface water bodies within the WSA. However, the normally dry arroyos occasionally carry storm runoff to the Rio Grande immediately after rainfall within their respective drainage areas. Periods of flow are short and may be widely spaced in time due to intermittent and sporadic rainfall patterns. Runoff averages 0.1 inches per year.

There are no developed ground water sources within the WSA. Developed sources adjacent to the WSA are used mainly for livestock watering purposes. Ground water quality is highly variable in the vicinity of the WSA as water is drawn from shallow and deep aquifers. Shallow ground water is often highly mineralized due to seepage of surface water containing high total dissolved solids. Ground water from deeper bedrock aquifers, usually limestone, is also often high in dissolved solids. Most ground water is suitable for livestock, and in some areas, for human consumption.

C. Soils

The majority of the Veranito WSA consists of rolling ridges with deep gravelly coarse textured soils. Rock outcrops of a hard volcanic tuff occur on many ridge tops. Swales and gently sloping alluvial fans on the east side contain deep loamy soils. Soils along the west boundary of the WSA are strongly influenced by the Rio Grande. On the floodplain, soils are stratified alluvial deposits and often have a high water table and high salt content. Just above the floodplain, there are small areas of deep sandy soils derived from material blown out of the Rio Grande channel and from the Santa Fe formation.

D. Vegetation

1. General

The vegetation of the WSA is typical of the upper Chihuahuan Desert at the northern extreme of its range. Four vegetation types have been identified: creosote, desert grassland, riparian, and mesquite.

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Creosote dominates the area, with approximately 88 percent of the WSA classified under this vegetation type. Creosote occurs in all of the upland sites in the WSA and is usually concentrated on alluvium and desert pavement. Grass species associated with this type include fluffgrass, burrograss, black grama, bush muhly, galleta, and spike dropseed. Other plant species include broom snakeweed, prickly leaf dogweed, desert willow, one-seed juniper, mesquite, fourwing saltbush, and Apache plume.

Approximately 350 acres in the northeastern corner of the WSA are classified as desert grassland. The dominant plant species is burrograss which makes up 73 percent of the composition. Other species present are sand dropseed, galleta, and broom snakeweed.

The northwestern corner of the WSA, which is adjacent to the Rio Grande, includes 415 acres of riparian vegetation. Although the dominant cottonwood is Fremont cottonwood, some narrow-leaf cottonwood is known to occur within the area. Other plant species occurring in this vegetation type include salt cedar, willows, salt grass, and Russian olive. Among the annuals present are Russian thistle and tansy mustard, which are poisonous plants.

The mesquite vegetation type covers approximately 100 acres and occurs immediately east of the riparian community. This type contains some dense stands of mesquite interspersed with alkali sacaton and thickets of wolfberry.

2. Rare Plant Species

The U.S. Fish and Wildlife Service (FWS) has not listed any threatened or endangered plant species that may occur in the WSA.

E. Wildlife

1. General

Two Standard Habitat Sites (SHS's) have been identified within the WSA. These SHS's support 213 wildlife species, which include 27 mammal species, 41 reptile and amphibian species, and 145 resident and migratory bird species. A complete list of wildlife species to be found within the WSA is on file at the Socorro Resource Area Office.

Big game indigenous to the WSA are mule deer. Estimated deer densities are low, less than two deer per square mile. Highest concentrations are in the riparian zone adjacent to the Rio Grande and in the arroyos.

The most common predator is the coyote. Bobcat and gray fox also inhabit the WSA and raccoon occur in the riparian zone. Porcupine, desert cottontails, black-tailed jackrabbits, white-throated woodrats, deer mice, and ground squirrels are common.

Typical bird species include dove, quail, red-tailed hawks, sparrowhawks, horned larks, ravens, and numerous songbirds.

Reptiles likely to be encountered are the collared lizard, eastern fence lizard, bullsnake, and western diamond-backed rattlesnake.

2. Threatened or Endangered Fauna Species

The Fish and Wildlife Service furnished the BLM information about three Federally-listed endangered animal species which may occur in the WSA: the bald eagle, the American peregrine falcon, and the whooping crane. These species were included in a biological assessment (BLM 1982) which concluded that the WSA provides poor quality nesting habitat for bald eagle and peregrine falcon, and there are no current or historically occurring eagle or falcon eyries within the WSA. The WSA does not provide any potential nesting habitat for the whooping crane. Potential habitat exists for supporting migrating individuals of all three species due to a sufficient food base and water availability in the Rio Grande Valley.

F. Visual

The WSA is a series of undulating parallel ridges cut by numerous shallow arroyos interspersed with high hills and a low elevation east-facing escarpment. Topographic relief is not dramatic and the overall landscape character is considered monotonous and unspectacular.

The only exception to the WSA's generally low scenic values is the cottonwood bosque riparian area. From mid-spring through late fall, this area's visual resource values are considered high due to the structure, contrast, and inherent beauty provided by a cottonwood forest which borders a stark desert landscape.

G. Cultural

The cultural resource values of the WSA are diverse. They range from early pithouse sites to multi-room pueblos. Presently, only three sites are recorded within the boundaries of the WSA. However, many isolated artifacts have been recorded from numerous locations within the area, which suggest the WSA was utilized extensively by Native Americans for subsistence purposes. The probability for the occurrence of unrecorded cultural sites within the WSA is high.

H. Air

Generally, the quality of air within the Veranito WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May), when gusty winds result in dust storms.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Mineral resources potential of the lands within the WSA is shown on Map 27-2, Map 27-3, and Table 3.

1. Energy Minerals

As of April 15, 1986, there were no oil and gas leases in the WSA.

a. Oil and Gas

Paleozoic rocks favorable for the generation of oil and gas probably underlie the WSA, but intense faulting precludes significant entrapment of petroleum. The WSA is considered to have low potential for the production of these resources.

b. Geothermal

There are no geothermal leases within the boundaries of the WSA, and no exploration or development has occurred. The WSA is located about 2 miles from the Socorro Peak Known Geothermal Resource Area.

Indications are that the WSA may be underlain by a sill-like magma body. Permeable reservoirs and impermeable cap rocks may be present at depth which suggests that significant volumes of hot fluids may be trapped beneath the ground. For these reasons, the WSA is considered to have moderate potential for the discovery of geothermal resources.

c. Uranium

The Popotosa and Santa Fe formations could be hosts for roll-type stratabound uranium deposits because both formations contain uranium-rich volcanic source rocks and permeable horizons, and may contain reductants such as organic matter or reducing geothermal fluids. The surface of the WSA is partly underlain by the Santa Fe formation and may be underlain by the Popotosa formation. The WSA is considered to have a moderate potential for the discovery of uranium.

2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with BLM in the WSA.

a. Manganese, Silver, Kaolin

There are known occurrences of these minerals associated with Datil volcanics in various areas outside of the WSA. The WSA is partly underlain by Datil volcanics, but does not have any known mineralization. The potential for the discovery of these minerals is considered to be low.

VERANITO WSA (NM-020-035)

Proposed Action - No Wilderness Alternative

MAP 27-2

ENERGY MINERAL RESOURCE POTENTIAL*

Legend

— WSA BOUNDARY

Land Status

- BLM
- PRIVATE
- STATE

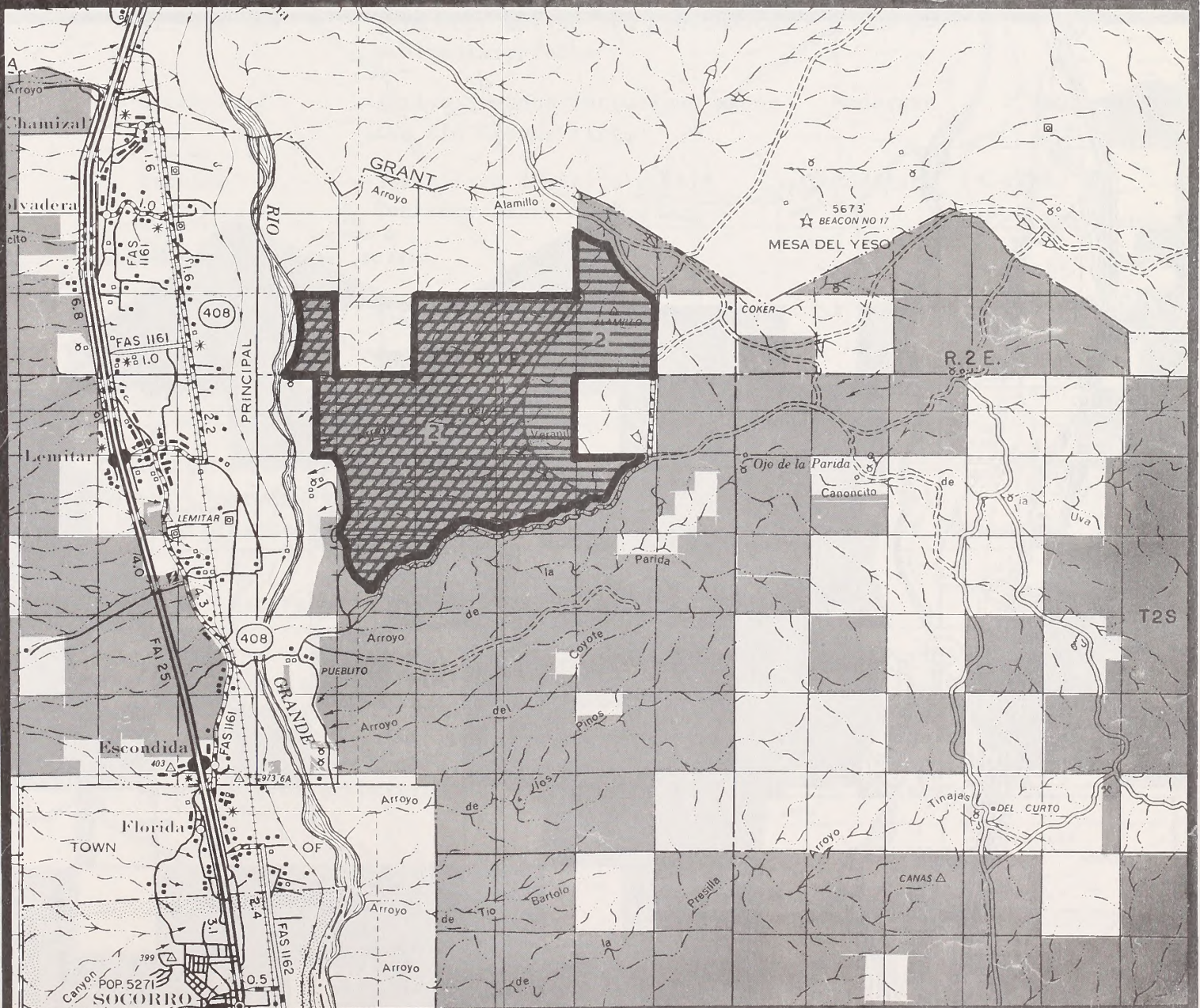
Geothermal

Uranium

Scale: 1/2 inch = 1 mile

Source:

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.



VERANITO WSA (NM-020-035)

Proposed Action - No Wilderness Alternative

MAP 27-3 NONENERGY MINERAL RESOURCE POTENTIAL*

Legend

— WSA BOUNDARY



Sand and Gravel

Land Status

■ BLM

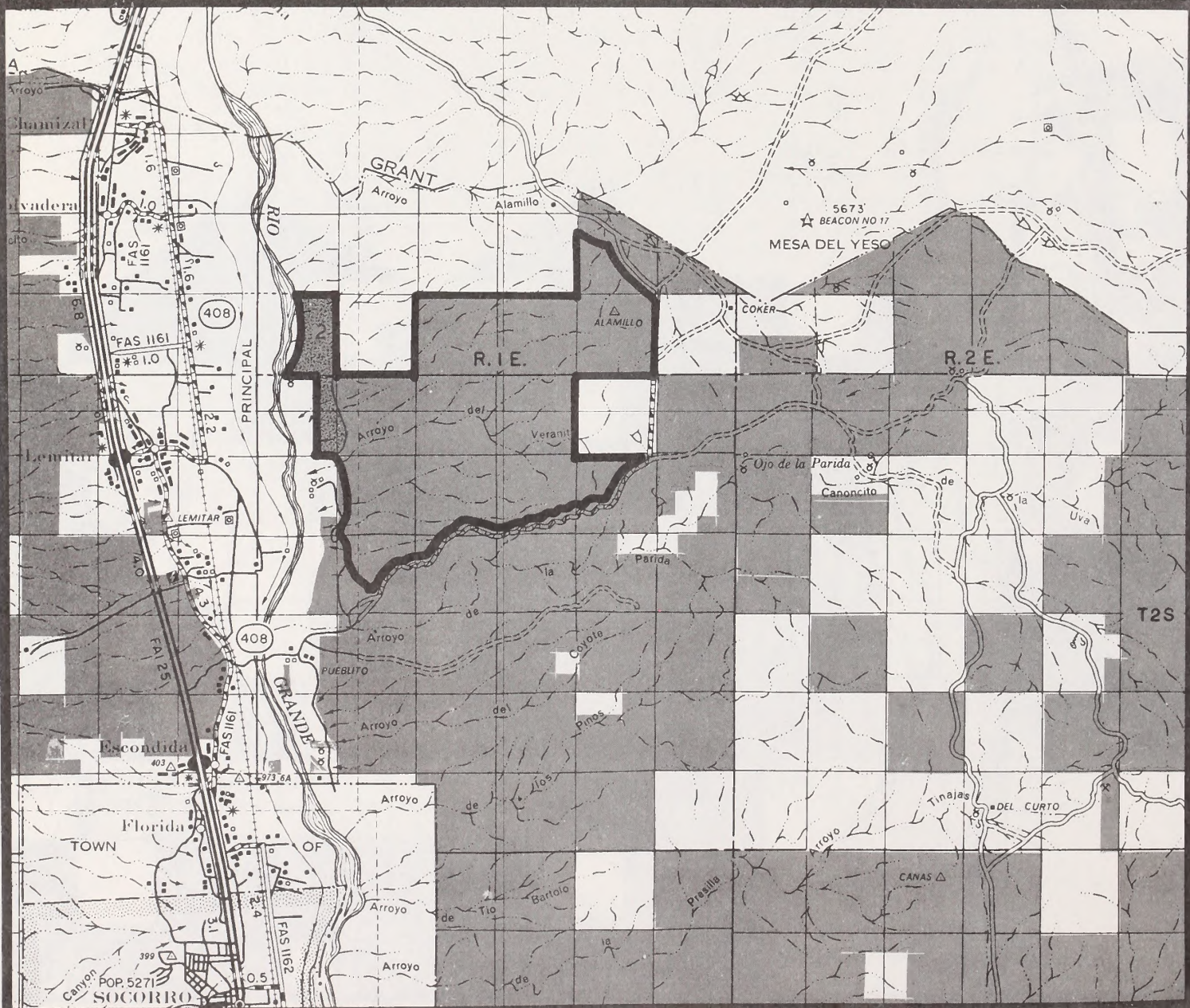
□ PRIVATE

□ STATE

*Areas of moderate (2) mineral potential are shown for lands within the WSA; the potential may extend outside the WSA boundary. Areas of low potential are not shown.

Scale: 1/2 inch = 1 mile

Source:



b. Sand and Gravel

Sand and gravel occur in the Santa Fe formation and Quaternary alluvium underlying the WSA. The presence of extensive deposits, proximity to population centers, and the accessibility of the deposits suggest that sand and gravel within the WSA could be used in local construction projects. The WSA is considered to have moderate potential for the development of these resources.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE VERANITO WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Paleozoic marine and continental sedimentary rocks	Low	--
Geothermal	Active igneous intrusions along the Rio Grande rift	Moderate	7,200
Uranium	Stratiform deposits within Tertiary basin fill	Moderate	4,300
Nonenergy Minerals			
Manganese ^a / Silver ^a , Kaolin	Altered Datil volcanics	Low	--
Sand and Gravel	Santa Fe formation and Quaternary alluvium	Moderate	450

Notes: *Acreage was not calculated for areas with low potential.

^a/Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

B. Watershed

The Veranito WSA is located entirely within the Parida watershed. The watershed is classified as a moderate erosion area and includes several different land types. Rolling ridges of gravelly soils occupy most of the WSA. While sheet and gully erosion undoubtedly contributes sediment directly to the Rio Grande, the actual quantities are not known. There are no water control structures or land treatments within the WSA.

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C. Livestock Grazing

1. Allotments

Parts of three grazing allotments lie within the Veranito WSA. All three grazing allotments are run as cow-calf operations.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Veranito 1306	5,028	445	4,216	370	83%
Pueblito Community 1318	3,504	240	620	41	17%
Parida 1322	11,021	1,248	2,370	275	22%
TOTAL			7,206	686	

2. Ranch Management

Permittees periodically inspect and maintain as necessary the dirt tank, fences, pipelines and associated developments through the use of motor vehicles. Vehicle access for maintenance of the Veranito pipeline is generally restricted to arroyos.

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development
Veranito 1306	6 miles of boundary fence 5½ miles of interior fence 1 dirt tank 3 miles of pipeline
Pueblito Community 1318	1½ miles of boundary fence
Parida 1322	3 miles of boundary fence 1 mile of interior fence 3/10 mile of pipeline

Note: ^{a/}Information shown in tables reflects only Federal acres and animal unit months (AUMs), and rangeland developments on public land.

3. Potential Rangeland Developments

No additional rangeland developments are planned in the WSA at this time.

D. Recreation

The Veranito WSA is within 15 minutes driving time of the City of Socorro and is adjacent to the community of Lemitar in the Rio Grande Valley. This portion of the valley is rapidly developing. Existing recreational use of the WSA is low, with the primary use being deer hunting. Off-road vehicle use is popular on the western boundary of the WSA and historically been very difficult and costly to manage.

The WSA has low potential for primitive recreational use. Activities include exploration, horseback riding, day hiking, and deer hunting.

The recreational use of the WSA is expected to increase somewhat in future years because of the WSA's ease of access and proximity to the community of Socorro. The primary increase would be motorized recreation.

E. Education/Research

The Veranito WSA is not currently being utilized for any known educational or research project. Education and research potential for cultural resources and riparian studies may exist.

F. Realty Actions

Socorro Electric Cooperative, Inc. was granted a right-of-way (ROW) to construct a wooden pole 14.4kv powerline to service the Chevron Pumping Station in T. 2 S., R. 1 E., Section 2. The northern edge of this ROW, in combination with the Johnson Hill Road, defines the southern boundary of the WSA.

G. Wildlife

The cottonwood bosque riparian area of the WSA is included in the Rio Grande Wildlife Habitat Management Plan (BLM 1982). Planned actions for the area include fencing and prescribed burns. The WSA has not been identified by the New Mexico Department of Game and Fish for the reintroduction of any species.

H. Other--White Sands Missile Range (WSMR) Safety Extension Area

Approximately 796 acres of the Veranito WSA lie within the WSMR Safety Extension Area and may be subject to occasional impacts from missile hardware or debris. The military periodically evacuates residents of the Area to ensure their safety.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The WSA appears to be affected primarily by the forces of nature; the imprint of man is substantially unnoticeable. Human impacts in the WSA include 5 miles of vehicle ways, approximately 17 miles of barbed wire fencing, 3 miles of buried plastic pipeline, and one dirt tank. The quality of the WSA's natural appearance is not high. Its relatively small size combined with rolling topographic relief and little vegetative screening, accentuates the human intrusions present within the WSA to an undesirable degree. This is especially true in the case of two-track vehicle ways and the buried water pipelines present in the WSA. A powerline and natural gas pumping station adjacent to the southern end of the WSA also reduce the naturalness of the WSA. This area marginally meets the naturalness criterion due to the concentration of man-caused impacts in such a small area.

b. Solitude

Arroyos which cut the benchlands and the cottonwood bosque in the northwest portion of the WSA provide screening and offer outstanding opportunities for solitude.

The gently rolling creosote desert landscape which characterizes much of the WSA offers little topographic or vegetative screening and opportunities for solitude are considered less than outstanding in these areas of the WSA.

c. Primitive and Unconfined Recreation

During the wilderness inventory, it was determined that the WSA was lacking in outstanding recreational opportunities. The WSA provides visitors with opportunities to experience a desert environment suited to day hiking, deer hunting, horseback riding, and exploration. The area is most attractive to these recreational pursuits during the fall, winter, and spring months. These opportunities are limited and not of a primitive nature due to the numerous rangeland developments which restrict or degrade recreational activities such as horsebackriding and backpacking. Recreational opportunities are further reduced by the limited recreational resources within the WSA. The opportunities for primitive recreation are of no greater quality or diversity than recreational opportunities in any undeveloped hilly area along the Rio Grande in the region.

The proximity of the WSA to the community of Socorro and its ease of access are important recreational assets. In terms of driving time, the WSA is within 15 minutes of Socorro.

2. Special Features

The WSA's known special features include its cultural resources and its cottonwood bosque.

A significant Piro Indian pueblo is located on the area's boundary and an unusual petroglyph site is present within the WSA. The potential for presently undocumented cultural resource sites is high for the area.

The WSA's 415 acres of cottonwood bosque is a remnant stand of trees which provide important wildlife habitat and considered a special feature within the WSA.

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Veranito WSA as being in the Chihuahuan Desert Province. The potential natural vegetation of the WSA is grama-tobosa shrubsteppe.



Typical landform and vegetation of the WSA.

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b. Distance From Population Centers

Three cities identified in the 1980 census as Standard Metropolitan Statistical Areas (SMSAs) are located less than 5 hours driving time of the WSA. The WSA is approximately 2 hours driving time from Albuquerque, New Mexico, 3 hours from Las Cruces, New Mexico, and 4 hours from El Paso, Texas.

B. Manageability

The Veranito WSA is manageable, however, only to provide for marginal wilderness values. Factors which affect the capability of the Veranito WSA to be managed as wilderness include the historic use of off-road vehicles (ORV) and the marginal wilderness values of area.

Increased ORV use in the WSA is expected to occur. The Veranito WSA is close to the community of Socorro and readily accessible to hunters and 4-wheel drive enthusiasts and has historically been used for motorized recreational purposes, especially by motorcycles and 3-wheeled all-terrain cycles. Closure of existing trails in the WSA would be very difficult to enforce without constant patrol. As the WSA does not possess high quality primitive recreational opportunities, management of the area as wilderness would not provide for the activities, but simply provide opportunities for solitude.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 7,206 acres of public land within the Veranito WSA would be recommended suitable for wilderness designation. (See Map 27-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (BLM 1981).

1. Impacts on Wilderness Values

Wilderness values would be retained and protected over the long-term by management under the Wilderness Management Policy. The Veranito WSA's existing marginal natural character and opportunities for solitude in a portion of the WSA would be maintained, as well as cultural resources and 415 acres of riparian habitat.

Conclusion. Under the All Wilderness Alternative, the long-term protection of Congressional designation would preserve the wilderness values of the Veranito WSA.

2. Impacts on Geothermal and Uranium Resources and Exploration.

Despite moderate potential for geothermal resources on 7,200 acres in the Veranito WSA, there has been no exploration or drilling in the area. After wilderness designation, no new leases would be issued. If a discovery were made in an area adjacent to the WSA, geothermal resources would be impacted in the long-term because there would no longer be an opportunity to fully evaluate the geothermal potential in the WSA. However, the impacts of wilderness designation on geothermal resources would not be significant because the Veranito WSA is only a small part of a surrounding extensive area of equal geothermal potential. Areas closer to the community of Socorro would prove much more valuable for geothermal exploration and development.

Although an area of 4,300 acres in the Veranito WSA has moderate potential for uranium, no mining claims have been located in the area. Development of the uranium potential in the Veranito WSA is not anticipated because current information indicates that most deposits of the type expected in the Veranito WSA tend to be small and uneconomical to mine. In addition, there are large areas of equal uranium potential in the State.

Conclusion. The impacts on geothermal and uranium exploration and development would not be significant under this alternative. In the long-term, the opportunity to explore and fully assess the potential for these minerals in the WSA would be foregone. If the resource was determined to have development potential, up to two producing geothermal wells could be foregone.

3. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 5 CYL per section (approximately 686 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed within the WSA to support this level of livestock grazing use include 16.75 miles of fence, 3.05 miles of pipeline, and 1 dirt tank. New rangeland facilities are not planned at this time. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy, with permits required when motorized vehicles or equipment are used. Minor repairs to the fences would have to be accomplished on horseback.

Restriction of vehicular use, less than 25 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the entire 7,206 acres of public land within the Veranito WSA would be recommended unsuitable for wilderness designation.

If the WSA is not designated wilderness, existing uses would continue and potential uses could be carried out as described in Chapter III.

Some mineral exploration activity is expected to occur in the long-term for geothermal and uranium resources. If the geothermal resource is determined to be developable, two wells could be drilled. Mineral material development could result in 5-10 sales per year. Continued vehicle use in the WSA could create new routes.

1. Impacts on Wilderness Values

The Veranito WSA would probably retain its wilderness values in the short-term. Anticipated mineral exploration and development would include drilling of up to 55 test holes and two producing geothermal wells in the WSA would result in approximately 60 acres of surface disturbance. Mineral material sales would result in up to 50 acres of surface disturbance. Up to 5 miles of upgraded and 5 miles of new roads would be constructed in connection with mineral exploration and development and mineral material sales. The additional surface disturbance, increased vehicle access, and vehicle use in the WSA would result in degradation of the area's existing marginal naturalness, outstanding opportunities for solitude, and special features.

Conclusion. In the long-term, potential resource development activities would eliminate the naturalness and existing opportunities for solitude the WSA possesses.

2. Impacts on Geothermal and Uranium Resources and Exploration

Geothermal leasing would continue. Locatable mining activities would be regulated to prevent unnecessary and undue degradation under the Surface Management Regulations (43 Code of Federal Regulations 3809).

Conclusion. There would be no impacts to geothermal or uranium resources under this alternative.

3. Impacts on Livestock Grazing Use Levels

All rangeland developments could be checked and maintained using motorized equipment as needed. The permittees would be allowed to use vehicles on a regular basis to check cattle. Livestock grazing would continue at the approximate levels currently existing (approximately 5 CYL per section).

Conclusion. There would be no impacts on livestock grazing use levels or operations.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

This report has been prepared with public input obtained by large mailings, public meetings, open houses, and personal contacts. These efforts began during the wilderness inventory phase and will continue during the preparation of the Statewide Wilderness EIS.

Public involvement in the wilderness inventory and study process has generally indicated support for designation of the Veranito WSA as wilderness. Reasons cited have revolved around the WSA's close proximity to the community of Socorro and the Rio Grande Valley.

Opposition to wilderness designation came from area permittees. Generally, permittees feel wilderness designation would complicate ranch operations and narrow rangeland management opportunities.

White Sands Missile Range (WSMR) personnel expressed concern that designation of the Veranito WSA as wilderness could potentially conflict with military operations within the WSMR Safety Extension Area.

During the public comment period on the Draft Environmental Assessment Socorro District Wilderness (BLM 1983), 17 letters were received on the Veranito WSA. Ten of the letters were opposed to wilderness designation while seven favored designation for the area. Those who favored designation of the WSA disagreed with the BLM's assessment of manageability problems resulting from the WSMR Safety Extension Area. It was also noted that the WSA's proximity to the community of Socorro enhanced its value as wilderness.

Opposition to wilderness designation centered around the area's lack of wilderness values and geologic favorability for geothermal resources, uranium, zeolites, and rare earths.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Veranito WSA and recommended wilderness designation for the entire WSA plus additional adjacent acreage. Specific comments were directed to the Veranito WSA by 10 commentators all of which supported wilderness designation.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Veranito WSA by 13 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The BLM's arguments against wilderness designation for Veranito are rather unconvincing. From page 27-3 of the DEIS:

The Veranito WSA marginally meets the required naturalness criterion. The opportunities for solitude and primitive recreation are not outstanding and supplemental values of the WSA are not significant. Conflicts with off-road vehicles (ORVs) are a concern in this WSA.

In contrast, on page 27-15:

The numerous arroyos which cut the benchlands and the cottonwood bosque in the northwest portion of the WSA provide screening and offer outstanding opportunities for solitude.

On page 27-16, cultural resources and the cottonwood bosque are listed as significant special features.

The BLM, therefore, admits in the detailed analyses quoted (and in several other places) that the WSA meets all of the required criteria. The underlying consideration appears to be manageability.

The Coalition proposal encompasses all of the WSA plus one section of State land on the eastern border and slightly over six sections of State land on the north between the WSA and the Sevilleta Wildlife Refuge. The resulting area is one for which the wilderness values far outweigh other considerations. ORV trespass, in particular, should not be used to recommend against wilderness designation for an area. The Coalition suggests that the BLM consider the formation of a volunteer citizens group to assist in the management of this problem."

Response: The BLM concurs with the Coalition's assessment that the Veranito WSA does provide outstanding opportunities for solitude and has corrected this error in this Final EIS. Opportunities for primitive and unconfined recreation within the WSA are, however, considered to be less than outstanding. While the WSA does contain unique Bosque habitat, it comprises only .06 percent of the entire WSA. The vast majority of the WSA is perceived as marginally meeting the minimum requirements of wilderness. As previously described in the Revised Draft EIS, the moderate potential for geothermal, uranium, sand and gravel, and other resources outweighs the less than exemplary wilderness values of the WSA.

VERANITO

No. 0100 (concluded)

Should at some future date, the State land outside the WSA identified for acquisition in the Coalition proposal be acquired by the BLM, an assessment of their wilderness values would occur. Should the land possess wilderness values, BLM would formally study them, and depending upon the results of the study, BLM would make a recommendation either in favor of or opposed to wilderness designation.

APPENDIX 28

ADEN LAVA FLOW WSA (NM-030-053)

I. GENERAL DESCRIPTION

A. Location

The Aden Lava Flow Wilderness Study Area (WSA) is located in the southwest quarter of Dona Ana County, 21 miles southwest of Las Cruces, New Mexico, and 45 miles northwest of El Paso, Texas. The WSA lies east and northeast of the West Potrillo Mountains and Mount Riley WSAs.

The U.S. Geological Survey (USGS) topographic maps covering the WSA are the Noria, Afton, Mount Riley, and Aden, New Mexico quadrangles. All of these maps are at the 15-minute scale.

B. Climate and Topography

The Aden Lava Flow WSA is characterized by an arid, continental climate, with mild winters and pleasant to hot summers.

Average annual precipitation in the area is approximately 8 inches. A wide variation in annual precipitation is characteristic of arid climates as illustrated by annual extremes of 19.60 and 3.62 inches recorded at New Mexico State University in Las Cruces during a 74-year period of record. More than half of the moisture normally falls during July, August, and September from convective thundershowers that are commonly intense and of short duration.

During the summer months, daytime temperatures quite often exceed 100°F. The average monthly maximum temperature during July, the warmest month, is slightly above 90°F. In January, the coldest month, the average monthly minimum temperature is in the middle 20's.

Winds generally predominate from the southeast in summer and from the northwest in winter. Wind speeds are usually moderate. Spring is the windy season. Dry, gusty winds are predominantly from the west and may exceed 30 mph in the afternoons.

The majority of the WSA (about 77 percent) is covered by the Aden Lava Flow. The lava flow is a nearly flat landform with average elevations ranging from 4,225 feet to 4,300 feet. The interior relief of the flow, however, is extremely varied. Steep-walled depressions in the lava occur in varying shapes and sizes. The larger depressions are 100 feet in diameter and 40-50 feet deep. Crevices up to 5 feet wide and 20-30 feet deep are numerous. Other ministructures within the flow include pressure ridges and lava tubes.

ADEN LAVA FLOW

The Aden Crater and Afton volcanoes are the most prominent topographic features in the lava flow. Aden Crater, in the northwest part of the WSA, is nearly circular with an interior depression about one quarter of a mile in diameter. The Afton volcanoes are a cluster of three resurgent volcanoes in the southeast part of the WSA.

The south-central part of the WSA outside of the lava flow is generally flat with rolling sand dunes.

C. Land Status

The WSA contains 25,287 acres of public land including 1,430 acres of split-estate ownership (Federal surface and non-Federal subsurface). There are 640 acres of State inholdings. Another 640 acres of State land are cherry-stemmed in the east-central part of the WSA. There are no private inholdings. (See Map 28-1 for land status.)

D. Access

The Aden Lava Flow WSA is legally accessible from County Roads B02 and A19, which form portions of the northeastern and eastern boundaries. Ranch roads along the northwestern, western, and southern boundaries all cross State and private lands for which there is no legal public access.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis, as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The All Wilderness Alternative is the proposed action for the Aden Lava Flow WSA. This recommendation is based on the area's exceptional naturalness, the excellent opportunities for solitude, and the area's special ecological and geological features. Wilderness designation would not significantly conflict with other resource uses of the area.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

 Alternatives Considered
and Set Aside

Reasons for Not Including this Alternative

Amended Boundary	An Amended Boundary Alternative was considered during the initial preparation of the WAR for the Aden Lava Flow WSA. Under this alternative, split estate lands (Federal surface/non-Federal subsurface) would have been excluded from that portion of the WSA recommended suitable for wilderness designation to improve manageability. However, after further examination of the alternative and consideration of public comments, it was determined that the potential manageability problems of the split estate lands would not be significant.
Expanding the WSA	The New Mexico BIM Wilderness Coalition recommended adding approximately 4,480 acres of public land including split-estate land and 1,920 acres of State land to the WSA. These lands are located around the edge of the WSA. A total of 1,430 acres of the split-estate land has been added under the Proposed Action. The State land has been identified for acquisition to enhance manageability. The remaining 3,050 acres of public land were deleted from wilderness study by the New Mexico Wilderness Study Area Decisions (BIM 1980) because of the presence of roads, ways, fences and water developments which impact naturalness.
Expanding the RNA or Designating an ACEC	During public comment on the New Mexico Wilderness Study Area Proposals, it was suggested that the RNA be expanded or that the area be designated an ACEC. This alternative was not considered since the only issue being addressed by the wilderness review process was suitability or unsuitability of the area as wilderness. Expanding the RNA or designating an ACEC in the area may be addressed in Resource Management Plans prepared by Las Cruces District.

 Issues Raised
and Set Aside

Reasons for Not Conducting a Detailed Analysis

Impacts on Saleable Minerals (Decorative Slab Basalt)	Although there are approximately 1,200 acres with high potential and 2,300 acres with moderate potential for decorative slab basalt in the Aden Lava Flow, a detailed analysis of the impacts of wilderness designation was not conducted because of the availability of similar materials elsewhere.
Impacts on Threatened or Endangered Species: Night blooming cereus	No Federally-listed threatened or endangered species are known to occur in the WSA. One State-listed species is found in the area, however, a detailed analysis was not conducted because of the low resource development potential.

 Alternatives Selected
for Detailed Analysis

Reasons

All Wilderness (Proposed Action)	25,287 acres were identified during the inventory as having wilderness values.
No Wilderness	The No Action Alternative required by NEPA.

 Environmental Issues Selected for Detailed Analysis

The quality of the Aden Lava Flow WSA's wilderness values and impacts on livestock grazing use levels were the primary issues identified for the area.

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives /Acreage	Major Environmental Issues
	Impacts On Wilderness Values
All Wilderness (25,287 acres) (Proposed Action)	Wilderness protection would maintain the lava flows' outstanding natural character, and outstanding opportunities for solitude. Research and educational opportunities to study melanistic species or volcanic processes would be maintained.
No Wilderness (25,287 acres)	Mineral material sales would degrade naturalness and opportunities for solitude in approximately 15 percent of the WSA on the east side. Naturalness and special features on 3,688 acres covered by the RNA designation would be maintained.



Looking West from the Aden Crater.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The WSA is west of the Rio Grande valley on a basin surface known as the La Mesa geomorphic surface. Features common to this area include coppice sand dunes, low relief volcanic craters and depressions, basalt flows, and cinder cones. Stratigraphic test wells indicate that thin deposits of eolian sand and recent volcanic flows overlie bolson fill and volcanics of Quaternary and Tertiary age, which in turn overlie sediments of Mesozoic and Paleozoic age. Major structural features in or near the WSA include the northeast-trending Robledo and Fitzgerald faults, and the northwest-trending Aden rift.

Thin vesicular olivine basalts of the Aden Lava Flow cover approximately 30 square miles, most of which lies within the WSA. The Aden basalt was extruded over 10,000 years ago, probably from fissures along the Robledo fault and Aden rift, and is associated with shield, spatter, and explosion collapse craters and depressions (Hoffer 1976). The Aden crater, a shield volcano (DeHone 1965), sits astride the Aden rift in the northwest corner of the WSA. Other features present along the Aden rift are circular and linear collapse depressions, probably the result of collapse over lava tubes or vents, and herraduras, U-shaped lava ridges. The surface of most of the lava within the Aden Lava Flow WSA is smooth, with some pahoehoe (ropey) lava and minor occurrences of aa (clinkery) lava (Hoffer 1975).

B. Water

The Aden Lava Flow WSA is situated within the highlands of the Mesilla Basin. Commonly referred to as La Mesa, this portion of the Mesilla Basin contributes to the larger Rio Grande Basin.

Surface water within the WSA drains predominantly as sheet flow with no distinct channel system. Drainage follows a slight gradient to the southeast and occurs as a result of local summer thundershowers.

Ground water in the Mesilla Valley is available primarily from the Santa Fe formation. A ground water trough is found between the West Potrillo Mountains and Aden Hills, and movement is southeastward towards the Rio Grande Valley. The gradient of the water table flattens from northwest to southeast across La Mesa. Depth to water is greater than 400 feet below the lava flow. Recharge to the ground water reservoir is limited in the WSA due to intrusive sills and other impermeable igneous rocks below the lava. Ground water quality is within recommended limits for livestock and wildlife use, as established by the National Academy of Sciences (BLM 1980).

C. Soils

The Aden Lava Flow WSA consists primarily of recent volcanic deposits characterized by black basalt rock outcroppings having a sharp, jagged surface with crevices and depressions interspersed among the outcroppings. Most of the soil material is found in the depressions. These soils were derived from basalt or were wind deposited and typically have

ADEN LAVA FLOW WSA (NM-030-053)

Proposed Action - All Wilderness Alternative

MAP 28-1 LAND STATUS

Legend

— WSA BOUNDARY



Aden Research Natural Area

Land Status

■ BLM

□ PRIVATE

□ STATE

■ BLM SURFACE/NON BLM SUBSURFACE

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.

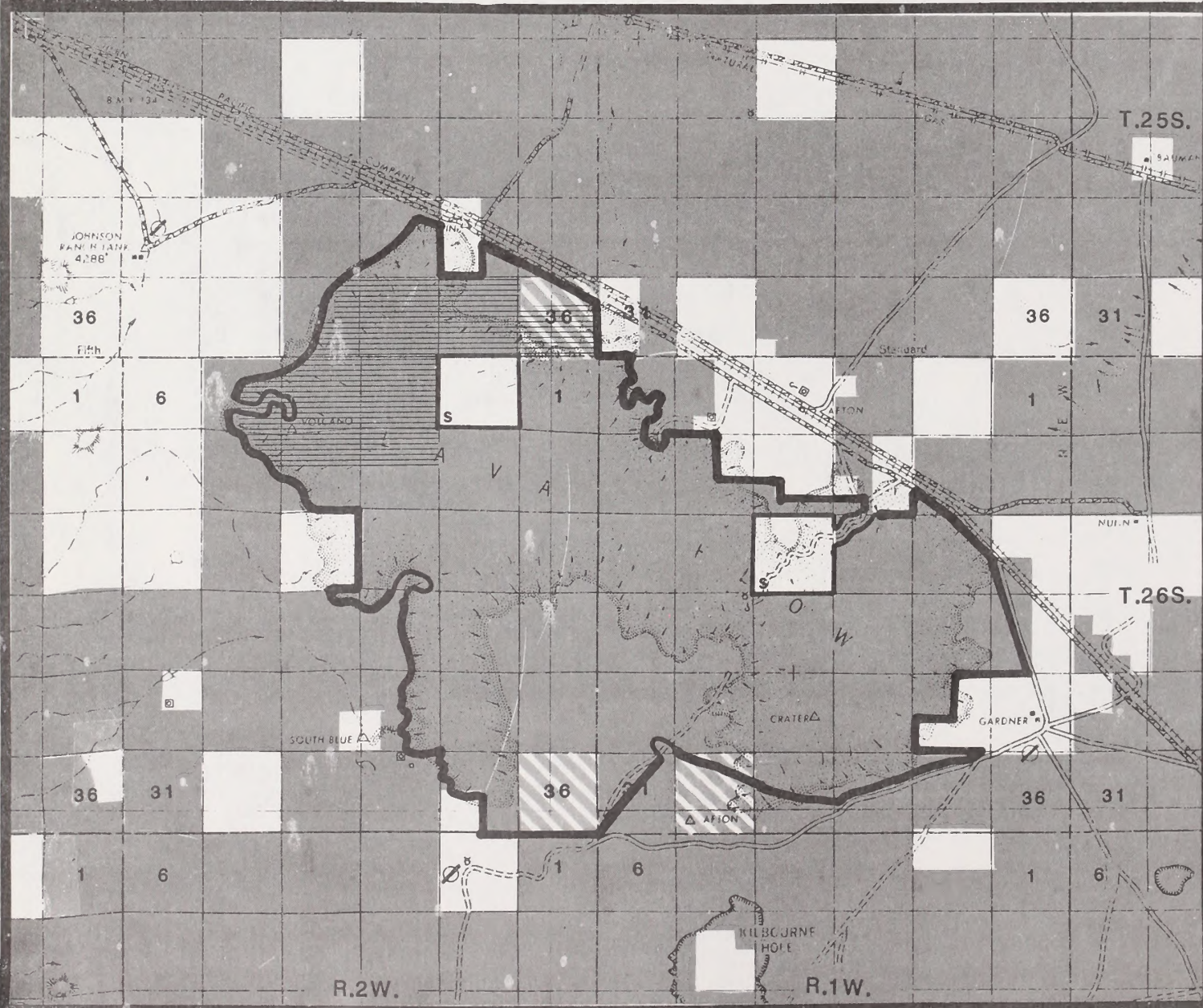


TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness (Proposed Action)	No Wilderness
^a MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 25,287 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	^a MANAGE 25,287 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-Attempts would be made to acquire 1,990 acres of State land and 1,430 acres of non-Federal subsurface (mineral) estate within and adjacent to the WSA.	-3,688 acres within the WSA would be managed as part of the 4,008-acre Aden Lava Flow Research Natural Area (RNA) (see map 28-1). Specific management prescriptions for the area include a No Surface Occupancy stipulation on oil, gas, and geothermal leasing; prohibition of mineral material sales; and limiting motorized vehicle use to existing roads and trails.
-Close 6 miles of vehicle ways which currently receive low use (less than 100 vehicles per year).	-No special attempts would be made to acquire State land or non-Federal mineral estate.
-Require a permit for vehicular access to one dirt tank and one drinking trough. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.	-Vehicle use would be allowed to continue on 6 miles of vehicle ways. Total vehicle use is estimated to be less than 100 vehicles per year.
-23,857 acres of Federal mineral estate would be closed to geothermal and oil and gas leasing and mining claim location.	-Rangeland developments could be checked and maintained on a convenience basis using motorized equipment. An average of one trip per week is expected.
-25,287 acres would be closed to mineral material sales. This would affect 1,200 acres with high potential and 2,300 acres with moderate potential for decorative stone (slab basalt).	-3,688 acres would be open for geothermal and oil and gas leasing with a No Surface Occupancy stipulation to protect the values of the RNA. No exploration or development is expected due to the low energy mineral potential.
-Up to 2 miles of road for reasonable access to 1,430 acres of non-Federal mineral estate could be permitted with consideration for protecting wilderness values. The need for access is not likely due to the low mineral potential of the split-estate parcels.	-20,169 acres of Federal mineral estate would be open for geothermal and oil and gas exploration and leasing without special stipulations. No exploration or development is expected due to the low energy mineral potential.
-Current livestock grazing use levels of approximately 3 head per section per year (1,558 AUMs) would continue.	-23,857 acres of Federal mineral estate would be open to mining claim location. Exploration or development is not anticipated.
-The four proposed pipelines and troughs on the Ostinati allotment (3056) could be installed to protect and effectively manage resources but not to accommodate increased numbers of livestock.	-21,599 acres would be open to mineral material sales of slab lava rock (of which 1,200 acres is high potential and 2,300 acres is moderate potential). Sales would not be permitted in the RNA. Because of the moderate to high potential, it is projected that there would be 5 to 10 sales per year which would result in annual surface disturbance up to 5 acres.
	-Access to 1,430 acres of non-Federal mineral estate would be permitted without consideration for wilderness values.
	-Current livestock grazing use levels of approximately 3 head per section per year (1,558 AUMs) would continue.
	-All four of the proposed pipelines and troughs on the Ostinati allotment (3056) could be authorized to meet livestock management objectives.

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives /Acreage	Major Environmental Issues
	Impacts On Wilderness Values
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No Wilderness (25,287 acres)	Mineral material sales would degrade naturalness and opportunities for solitude in approximately 15 percent of the WSA on the east side. Naturalness and special features on 3,688 acres covered by the RNA designation would be maintained.



Looking West from the Aden Crater.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

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B. Water

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Ground water in the Mesilla Valley is available primarily from the Santa Fe formation. A ground water trough is found between the West Potrillo Mountains and Aden Hills, and movement is southeastward towards the Rio Grande Valley. The gradient of the water table flattens from northwest to southeast across La Mesa. Depth to water is greater than 400 feet below the lava flow. Recharge to the ground water reservoir is limited in the WSA due to intrusive sills and other impermeable igneous rocks below the lava. Ground water quality is within recommended limits for livestock and wildlife use, as established by the National Academy of Sciences (BLM 1980).

C. Soils

The Aden Lava Flow WSA consists primarily of recent volcanic deposits characterized by black basalt rock outcroppings having a sharp, jagged surface with crevices and depressions interspersed among the outcroppings. Most of the soil material is found in the depressions. These soils were derived from basalt or were wind deposited and typically have

surface textures of loam or sandy loam. The rock outcrop sheds water to these soils, thereby increasing the effective precipitation to these soils.

On the east side of the WSA, there is a lesser amount of exposed rock and the soils typically are shallow and sandy over caliche coated basalt bedrock. These soils are usually gravelly on the surface.

D. Vegetation

1. General

The vegetation and associated range sites within the Aden Lava Flow WSA consist of four major types:

<u>Vegetation Types</u>	<u>Range Sites</u>	<u>Federal Acres</u>
Grass-mixed desert		
shrub	Malpais (lava flow)	18,593
Mesquite	Sandy	4,529
Creosote	Shallow sand	1,821
Grass-mixed desert		
shrub	Bottomland (swale)	344

Grass species (tobosa, vine-mesquite, dropseeds, bluestems, and black grama) occur in pockets of soil in the rough broken lava rock of the malpais (lava flow). Mixed desert shrub species such as creosote, snakeweed, Mormon tea, tarbush, and yucca occur where large amounts of soil have accumulated.

Mesquite, yucca, broom dalea, snakeweed, and pale wolfberry shrub species are the dominant vegetation on sandy areas on the south side of the Aden Lava Flow WSA. Grass species, present in small amounts, are bush muhly, black grama, other gramas, tobosa, dropseeds, and threeawns.

Creosote shallow sand areas occur around the edges of the lava flow in this WSA. Other shrub species associated with these areas are snakeweed, Mormon tea, yucca, mesquite, and cacti. Grass species including bush muhly, black grama, dropseeds, tobosa, and fluffgrass occur in small numbers.

Deep soils in the bottomland (swale) areas support small dense stands of tobosa grass. Invading shrubs are sumac, Mormon tea, mesquite, tarbush, and snakeweed.

2. Rare Plant Species

The following species was identified and located in or near the WSA (NMSHP and USFWS 1982; revised 1986).

Species: Cereus greggii - night blooming cereus
Status: Listed as endangered by the State of New Mexico;
candidate for Federal listing.
Habitat: Widespread; does not grow commonly anywhere; needs
the microhabitat associated with creosote and bush muhly.

E. Wildlife

The Aden Lava Flow WSA is mainly a lava habitat site (77 percent). Small areas of other habitat sites found at the outer edges are mesquite sand dune, snakeweed, and creosote.

The Aden Lava Flow exhibits a number of valuable and interesting wildlife features. The edge of the flow is an ecotonal area which has an overlap of species from both the lava and the surrounding desert. There also may be species typical of the ecotone itself.

Vent tubes and the many crevices found in the lava provide escape cover and den sites for wildlife. Bats are numerous because of the good habitat; there are 12 species identified from the lava flow. Wide-ranging carnivores can live within the flow and move out into the desert to hunt. There are ten carnivore species found in the lava flow; seven is the average number for desert ranges. Rodents and rabbits are abundant around the edges of the lava flow because there is soft sand for burrowing, vegetation for feeding, and the nearby escape cover of the lava flow.

There are many depressions in the lava flow which collect rainwater. The vegetation in these depressions is denser than that of the lava flow or the surrounding desert. These areas are particularly important for the bird life of the WSA because they provide more food and cover than any other part of the WSA. Outside the lava flow, soaptree yuccas are fairly common. These are important for nesting raptors, particularly Swainson's hawks (BLM 1976). There are high densities of raptors in the surrounding desert, especially in the winter (BLM 1981). It is likely that high rodent prey densities, such as those at the edge of the flow, partially account for this.

A phenomenon peculiar to lava flows is that many animals living on them exhibit melanism, or protective dark coloration. Two melanistic species, the rock pocket mouse and the black-tailed rattlesnake, have been found in the WSA. Both are rock-dwelling animals which are isolated to the lava flow by the surrounding desert (BLM 1976).

F. Visual

Two scenic quality rating units (SQRUs) describe the Aden Lava Flow WSA. The Aden Crater and Lava Flow are seen as one rating unit with a Class B or moderate scenic quality rating. The lava flow has a broken irregular surface which is low in profile and horizontal in form. The Crater rises above the lava flow to an elevation of 4,300 feet, and has a flat-topped conelike form. Pockets of soil support scattered vegetation. There is some degree of color contrast between the dark brown and black colored lava rock and the dark greens and light browns of the vegetation.

The south-central part of the WSA is an area of flat to gently rolling desert with a Class C scenic quality rating. The green, tan, and gray colors of creosote, mesquite, yucca, and grasses offer some contrast with the orange-brown sand dunes. This scenery is common within the region.

Approximately 21,241 acres of the WSA (the Aden Crater and Lava Flow) fall into a Visual Resource Management (VRM) Class III. The remaining 4,046 acres in the south-central part of the WSA are in a Class IV.

G. Cultural

There are no known cultural sites in the Aden Lava Flow; however, there has been very little survey in the area. There is a major paleontological site in the Aden Fumarole which may still contain significant deposits (see Chapter III, Education/Research).

H. Air

Generally, the quality of air within the Aden Lava Flow WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May) when west-prevailing winds, commonly gusting in excess of 30 mph, result in dust storms throughout the southern part of the State.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

General locations of areas with moderate or high potential for mineral resources within the Aden Lava Flow WSA are shown on Map 28-2. The locations of areas under lease for oil and gas are shown on Map 28-3.

1. Energy Minerals

As of April 15, 1986, seven oil and gas leases covering 14,630 acres were present within the WSA boundary, all of which became effective after the enactment of the Federal Land Policy and Management Act (FLPMA) in 1976. A Research Natural Area (RNA) has been designated in the northwestern corner of the Aden Lava Flow. Leasable energy minerals within the RNA are leased with a No Surface Occupancy (NSO) stipulation to protect the values of the area (BLM 1983).

a. Oil and Gas

Although petroleum source and reservoir rocks probably occur at depth, and shows of hydrocarbon were encountered in a deep oil and gas wildcat well about 4 miles northeast of the WSA (Grimm, Hunt, Brown, and American Arctic Ltd., No. 1 Mobil-32, T. 25 S. R. 1 E., Section 32), exposure to high temperatures from volcanic activity and faulting may have had negative effects on any previously existing oil and gas accumulations. Unless exploration reveals additional positive information, the potential for petroleum resources in the WSA is low.

b. Geothermal

Although geothermal waters are often associated with recent volcanism, exploration in the Aden Lava Flow area has shown that the geothermal potential of this WSA is low despite its recent volcanic activity. Hunt Energy Corporation drilled several geothermal temperature gradient holes near Aden Crater, but only one of these showed higher than normal gradient and heat-flow data, and the anomaly was small. Roger Bowers of Hunt Energy Corporation (1984) believes that the Aden Crater area has little potential for geothermal resources of any type, based upon the data obtained during Hunt's exploration of the area. Although some low-temperature geothermal waters may occur, the depth to these resources (probably 1,500 to 2,000 feet) and the subsequent cost of drilling and pumping the water would probably be economically prohibitive for greenhouse or other space-heating use.

2. Nonenergy Minerals

As of April 15, 1986, there were no mining claims recorded with the BLM within the WSA.

a. Zeolites

Zeolites, common vug and fracture-filling constituents of basalt, probably occur in the area. The potential for the discovery of zeolites as a mineral resource, however, is low since igneous occurrences of zeolite are generally of small size and low grade (Mumpton 1975).

b. Decorative Stone

Much of the basalt exposed in the WSA is ideal for use as decorative stone because it is easily broken into thin slabs. There have been several inquiries about this stone in recent years, but due to the interim management regulations for lands under wilderness review, extraction of the material has not been permitted. Transportation of the material from the southeastern part of the WSA to local markets would be easily accomplished by truck; distant markets could be reached by means of the Southern Pacific railroad line that runs along the northeast boundary of the WSA. Although the basalt is present over much of the WSA, accessibility is best along the east and southeast portions of the area, making these the areas of high potential, with the rest of the WSA having moderate to low potential.

Although the potential exists for the development of the Aden basalt as a source of decorative stone, the demand is local and can be satisfied with other types of stone from nearby areas.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE ADEN LAVA FLOW WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Paleozoic source and reservoir rocks exposed to faulting and volcanism	Low	--
Geothermal	Recent volcanism; exploration in the area has had negative results	Low	--
Nonenergy Minerals			
Zeolites	Vesicular basalt flows	Low	--
Decorative Stone	Slab basalt	High	1,200
		Moderate	2,300
		Low	--

Note: *Acreage was not calculated for areas with low potential.

ADEN LAVA FLOW WSA (NM-030-053)

Proposed Action - All Wilderness Alternative

MAP 28-2 MINERAL RESOURCE POTENTIAL *

Legend

— WSA BOUNDARY



Slab Lava Rock

Land Status

BLM

PRIVATE

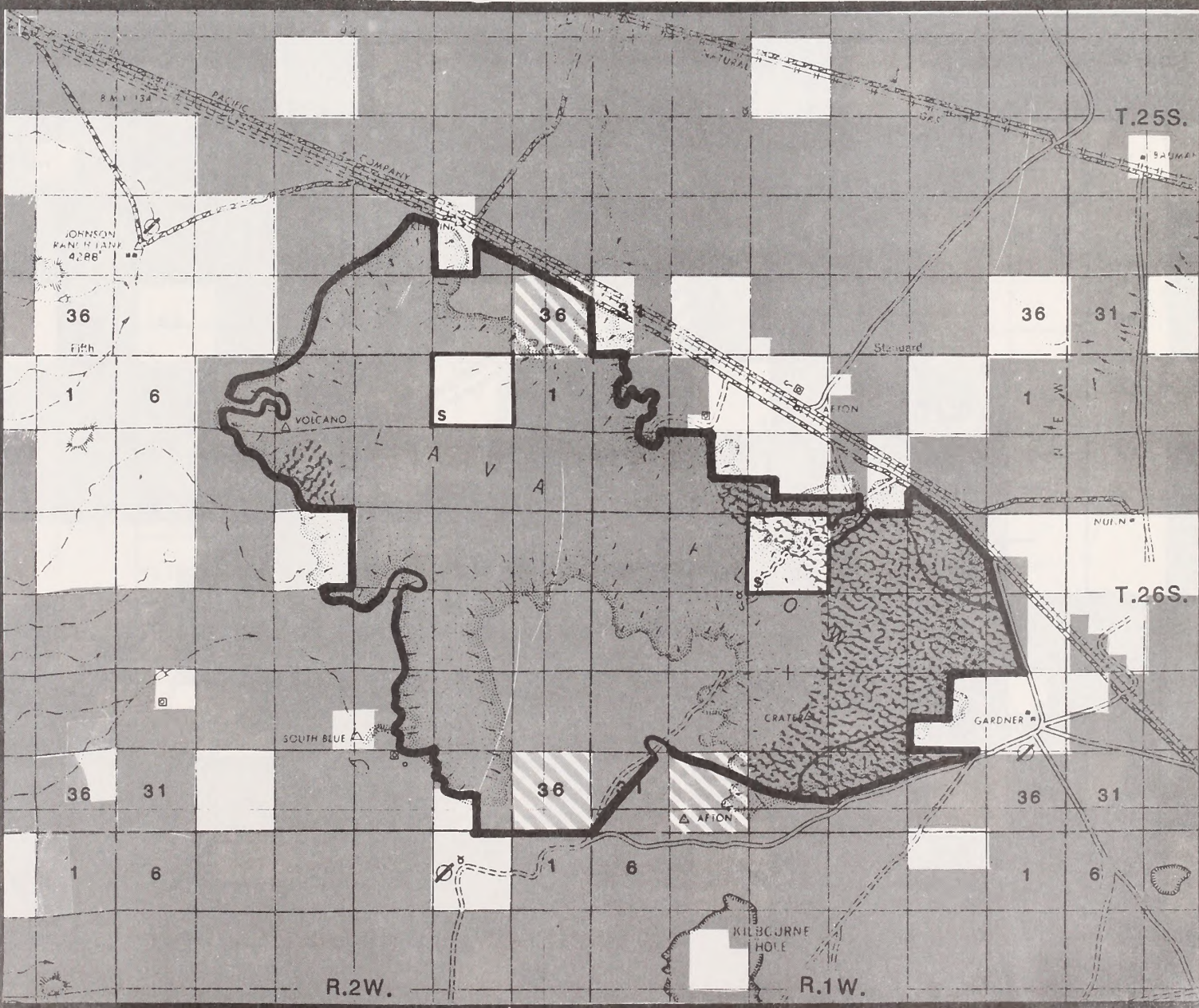
STATE

BLM SURFACE/NON BLM SUBSURFACE

Scale: 1/2 Inch=1 mile

* Areas of high (1) and moderate (2) mineral potential are shown for lands within the WSA except for split-estate land; the potential may extend onto the split-estate land and outside the WSA boundary. Areas of low potential are not shown.

Source: USDI, BLM, Las Cruces District, April, 1986.



ADEN LAVA FLOW WSA (NM-030-053)

Proposed Action - All Wilderness Alternative

MAP 28-3 MINING CLAIMS AND MINERAL LEASES*

Legend

— WSA BOUNDARY

Land Status

BLM

PRIVATE

STATE

BLM SURFACE/NON BLM SUBSURFACE



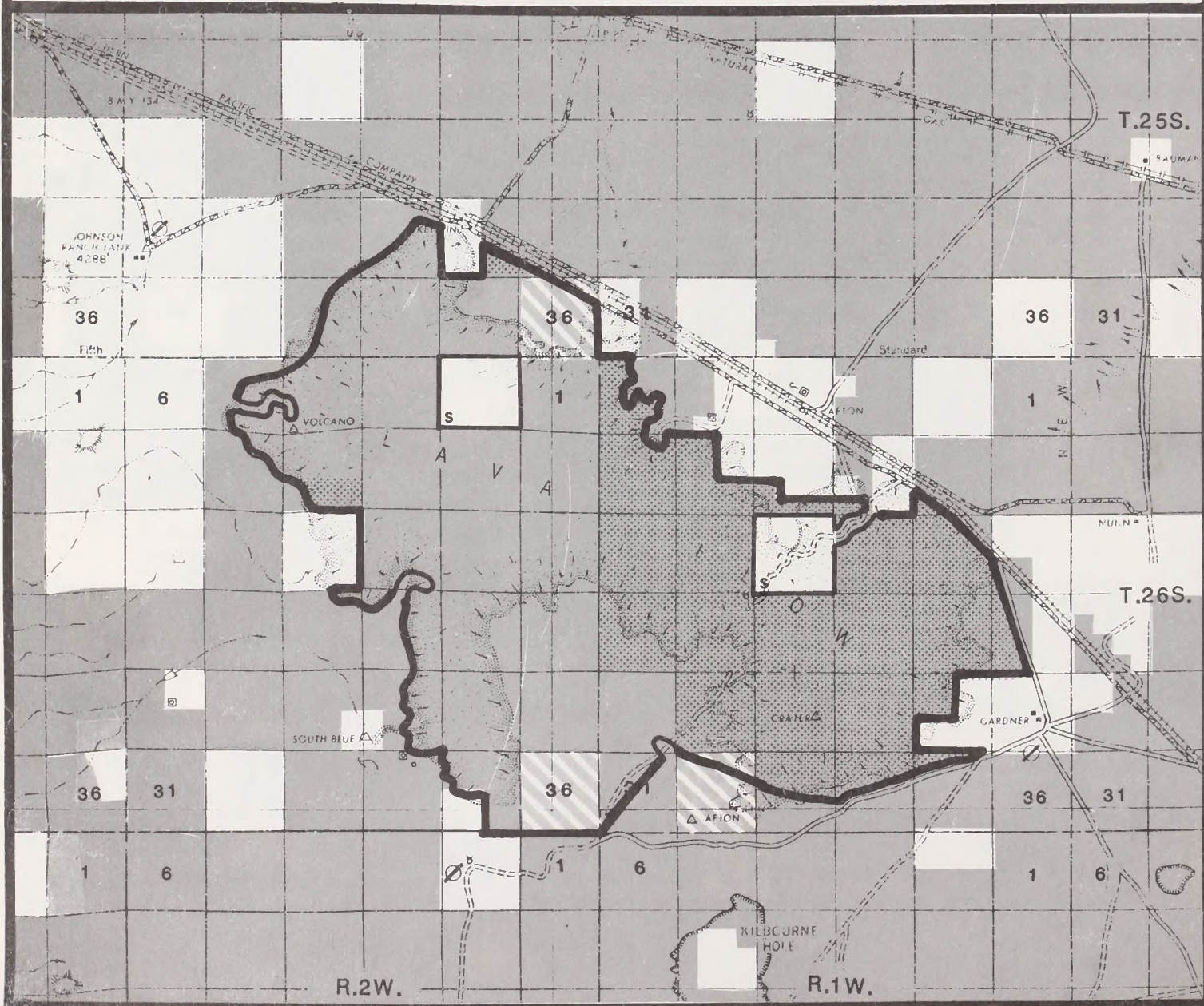
Post-FLPMA Oil and Gas Leases

FLPMA was passed October 21, 1976.

*No mining claims were recorded with the BLM within the WSA as of April 15, 1986.

Scale: 1/2 Inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



B. Watershed

Water use within the Aden Lava Flow WSA is primarily by livestock and wildlife. A dirt tank is located on a small arroyo along the eastern edge of the WSA.

The WSA lies within the Lower Rio Grande declared underground water basin and ground water use is administered by the New Mexico State Engineer.

C. Livestock Grazing

1. Allotments

Parts of two grazing allotments are within the Aden Lava Flow WSA. Livestock grazing is limited on the west side of this WSA due to the rough, broken terrain of the lava flow. Licensed grazing use on public land includes cattle and a few horses.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
Kilbourne Hole 3023	85,488	5,760	7,388	518	9%
R. Cosimati 3056	22,000	1,284	17,899	1,040	81%
TOTAL			25,287	1,558	

2. Ranch Management

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development	Location
Kilbourne Hole 3023	interior fence drinking trough	1½ miles T. 26 S., R. 1 W., Sec. 33
R. Cosimati 3056	dirt tank interior fence	T. 26 S., R. 1 W., Sec. 13 5 miles

Boundary Fence: Kilbourne Hole 3023 and R. Cosimati 3056 8½ miles

3. Potential Rangeland Developments

The locations of the proposed rangeland developments shown in the following table are tentative. The purpose of the proposed pipelines is not to accommodate increased livestock numbers, but to redistribute grazing use over the Cosimati allotment (3056) and relieve grazing pressure around existing livestock waters. The rangeland condition on presently heavily grazed areas of the allotment would show improvement in the long-term.

TABLE 6
PROPOSED RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development	Location
R. Cosimati 3056	pipeline	1½ miles-T. 26 S., R. 2 W., Secs. 1, 12
	trough	T. 26 S., R. 2 W., Sec. 12
	pipeline	1 mile-T. 26 S., R. 2 W., Secs. 14, 15
	trough	T. 26 S., R. 2 W., Sec. 14
	pipeline	1½ miles-T. 26 S., R. 1 W., Secs. 17, 18
	trough	T. 26 S., R. 1 W., Sec. 18
	pipeline	1 mile-T. 26 S., R. 1 W., Sec. 23
	trough	T. 26 S., R. 1 W., Sec. 23

Note: ^{a/}Information shown in tables reflects only Federal acres and animal unit months (AUMs), and rangeland developments on public land.

D. Recreation

Aden Crater is visited for its scenic and geologic values. The vehicle trail through the southeast part of the WSA is used as a scenic drive. Vehicle trails along the eastern perimeter of the lava flow are used by off-road vehicle (ORV) enthusiasts. The area around the lava flow is hunted for small game. The lava flow itself receives almost no hunting pressure due to its roughness. The Aden Fumarole is the only known cave in the WSA (see Chapter III, Education/Research). The fumarole contains a 120 foot pit. Rockhounds collect lava rock in the area. Small game hunting, ORV use, and weekend sightseeing make up the majority of recreation uses in and around the WSA. Visitor use estimates are unavailable.

E. Education/Research

An area of 4,008 acres in the northeast part of the Aden Lava Flow was designated a RNA in 1978. Approximately 3,688 acres of the RNA are within the WSA boundary. The primary management objectives for the Aden Lava Flow RNA are fourfold:

1. To preserve an adequate sample of the lava flow ecosystem and the unique geological and biological phenomena associated with it.

2. To provide research and educational opportunities for scientists, educators, and others in the observation and study of this particular ecosystem. Scientists and educators are encouraged to use this area in a manner that is nondestructive and consistent with the purpose for which the area is established.

3. To preserve the full range of genetic diversity for native plants and animals.

4. To provide a basis for organized research and exchange of information on RNAs.

Even before this designation, a great deal of research was done in the lava flow. Marsha McKinnerney, Dr. William Reid, and Dr. Richard Smartt of the University of Texas at El Paso have done various studies on carnivores, bats, and other mammals in the lava flow. A number of researchers (Koschmann 1972; Lewis 1951; Prieto and Jacobson 1968; Benson 1932, 1933) have studied melanistic rodents and reptiles in the Aden Lava Flow.

Dr. Reid is also studying the plant-soil relationships in this area and hopes to do further work. Dr. Earl of New Mexico State University has indicated that he makes regular field trips to the lava flow with students from his physical geography, earth science, and geomorphology classes. He also indicated that the area provides opportunities for studies in igneous petrology, volcanism, structural geology, endogenic geomorphology, and Quaternary geomorphology and paleontology. A wide spectrum of biological and geological studies is possible in the future.

A nearly complete, well-preserved giant ground sloth was found in the Aden Fumarole in the late 1920's. The specimen can be seen at the Yale Peabody Museum in New Haven, Connecticut. Other fumaroles could contain well-preserved late Pleistocene fossils.

The RNA has been designated limited to existing roads and trails for ORV use. No motorized cross-country travel is allowed.

F. Wildlife

There are two quail guzzlers just outside the boundary of the Aden Lava Flow WSA, one on the northwest and one on the northeast side. They are close enough to be water sources for wildlife which live on the lava flow.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The imprints of man within the 25,287-acre Aden Lava Flow WSA are minimal, consisting of 1 dirt tank, 1 drinking trough, 15 miles of fence, and 6 miles of two-track vehicle ways.

The dirt tank is located just inside the east boundary of the WSA. The fences transect the area north-south and east-west. All have wooden posts which blend in well with the landscape. With the exception of 3 miles of ways extending across the southeast one-third of the WSA, the vehicle ways are located along the perimeter of the lava flow. All of the ways are short and screened topographically.

Due to the low impact and dispersed location of these imprints in relation to the large size and rugged interior relief of the WSA, the cumulative impacts on naturalness are minimal. The quality of the WSA's naturalness is exceptional.

b. Solitude

The varied and rugged interior relief of the Aden Lava Flow provides outstanding opportunities for solitude throughout the WSA.

These opportunities are further enhanced by the relatively large size and blocked-up configuration of the WSA. The WSA is approximately 7 miles long and 7 miles wide. Foot access into the area is available from all directions. The size, shape, and accessibility of the area would enable visitors to disperse throughout the WSA to avoid the sights and sounds of others.

Opportunities for solitude are somewhat impacted by the cherry-stemmed road into the Crater. As visitor use via motorized access increases, opportunities for solitude in the Crater would diminish proportionately.

Opportunities for solitude are also occasionally impacted by the outside sounds of trains on the Southern Pacific Railroad along the northeast boundary of the WSA. These impacts are not significant.

Overall, the quality of solitude opportunities in the WSA is excellent.

c. Primitive and Unconfined Recreation

Primitive recreation opportunities in the Aden Lava Flow WSA include hiking, backpacking, nature study, and small game hunting. During the intensive inventory, these opportunities were judged to be less than outstanding.

2. Special Features

The Aden Lava Flow contains special ecological and geological features. The area is important from a scientific and educational point of view to study the interactions and interrelationships of the area's geology, soils, flora, and fauna. A portion of the area was designated a Research Natural Area (RNA) in 1978 (see Map 28-1 for a general location of the RNA). Much research has been conducted in the RNA and future projects are planned (see Chapter III, Education/Research).

The Aden Lava Flow exhibits typical lava flow topography (see Chapter I, Climate and Topography). Depressions in the lava flow collect soil and rainwater (see Chapter II, Soils). In these depressions, plant vigor is good and there is a wide diversity of species (see Chapter II, Vegetation). In addition, parts of the lava flow are ungrazed due to the rough topography (see Chapter III, Livestock Grazing). The area provides habitat for a Bureau sensitive plant species listed as endangered by the State of New Mexico (see Chapter II, Vegetation).

A diverse wildlife community is also associated with the lava flow due to the overlap of species from the lava flow and the surrounding desert. Some species exhibit melanism or dark protective coloration (see Chapter II, Wildlife).

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Aden Lava Flow WSA as being in the Chihuahuan Desert Province with a potential natural vegetation of grama-tobosa shrubsteppe.

The general nature of the Bailey-Kuchler System fails to show the vegetation variety and diversity of the WSA. Further refinement of the system shows the following vegetation types in the WSA:

Vegetation Type	Acres
grama-tobosa shrubsteppe	18,937
mesquite-acacia savanna	4,529
creosote	1,821

ADEN LAVA FLOW

b. Distance From Population Centers

The Aden Lava Flow WSA is approximately 1 hour driving time from El Paso, Texas; 1 hour from Las Cruces, New Mexico; 5 hours from Albuquerque, New Mexico; 6 hours from Tucson, Arizona; and 8 hours from Phoenix, Arizona.

B. Manageability

Several characteristics of the Aden Lava Flow WSA contribute favorably to its capability of being managed as wilderness in the long-term. The ruggedness of the lava flow inherently limits and discourages additional rangeland developments, off-road vehicle (ORV) use, and other human intrusions. The WSA's large size and blocked-up configuration enhance the likelihood of the area remaining natural and opportunities for solitude being preserved.

Management of the area as wilderness is minimally complicated by State land. State land within the lava flow limits the degree of BLM control over the WSA (see Map 28-1 for land status). Nonwilderness or incompatible uses on State land would negatively impact wilderness values if development of access required road construction across the lava flow. At the present time, it appears unlikely that mineral development would occur on the State land.

The split estate lands could also present a manageability problem. The BLM is required to provide reasonable access to private inholdings, including subsurface inholdings, within wilderness areas. Any development of the subsurface estate would result in surface disturbance and would require overland access. Management of the area as wilderness would be complicated by such development. The split estate parcels are located on the edge of the WSA, therefore, any developments and associated access with resulting manageability problems would be localized and would not be significant in the WSA as a whole. However, due to the low mineral potential of the split estate lands, it is unlikely that any development would occur.

If the Aden Lava Flow area is designated wilderness, approximately 1,990 acres of State land adjacent to the WSA and 1,430 acres of non-Federal mineral estate within the WSA should have a high priority for acquisition to enhance the area's manageability. The legal description for these lands is as follows.

<u>Legal Description</u>	<u>Acres</u>
State Land	
T. 25 S., R. 2 W., Section 26, W $\frac{1}{2}$ (that portion south of the railroad tracks)	230
T. 26 S., R. 1 W., Section 16, All	640
T. 26 S., R. 2 W., Section 2, All	640
Section 16, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$	<u>480</u>
TOTAL	1,990

Non-Federal Subsurface (Mineral) Estate

T. 25 S., R. 2 W., Section 36, All (That portion south of the railroad tracks)	560
T. 26 S., R. 1 W., Section 32, NE $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$	230
T. 26 S., R. 2 W., Section 36, All	640
	<hr/>
TOTAL	1,430

The BLM Las Cruces District is currently working with the New Mexico State Land Office to exchange these lands, both surface and subsurface. It is expected that this exchange will be completed by 1988.

Continuation of vehicle use on the road into Aden Crater presents a minor manageability concern. As visitor use increases, opportunities for solitude in the Crater would diminish. In addition, the Aden Crater is within the RNA. (See Map 28-1 for the general location of the RNA.) The RNA management plan requires that ORV use be restricted within the RNA. If the area is designated wilderness, the necessity and feasibility of closing and rehabilitating the road should be determined during development of the wilderness management plan.

The Aden Lava Flow WSA could be managed to preserve existing wilderness values in the long-term.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness (Proposed Action)

Under this alternative, the entire 25,287 acres of public land within the Aden Lava Flow WSA would be recommended suitable for wilderness designation. (See Map 28-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the BLM's Wilderness Management Policy (WMP) (BLM 1981).

In 25,287 acres designated as wilderness, closure to vehicle use will result and opportunities for exploration and development of minerals would be foregone. Short-term consumptive uses would not degrade the maintenance and enhancement of the long-term productivity. Although designation of wilderness constitutes a long-term commitment of resources, such designation is reversible by Congress.

1. Impacts on Wilderness Values

Under wilderness designation, the WSA's naturalness would be preserved. Naturalness and outstanding opportunities for solitude would be enhanced by 10 percent in the long-term by the closure of 6 miles of ways to motor vehicles and by limitations on livestock operators' use of motorized equipment in the WSA. New rangeland developments would be permissible if necessary for resource protection and the effective management of those resources. These limitations would also help to preserve the area's naturalness and opportunities for solitude.

The closure of the area to mineral material sales would preserve naturalness, particularly in the east-central and southeast parts of the WSA. Access to the subsurface mineral estate of the split-estate parcels could degrade naturalness; however, access needs are not anticipated due to the low mineral potential of the parcels, and due to the fact that BLM is currently working with the New Mexico State Land Office to acquire the State-owned surface and subsurface holdings in the WSA.

The limited primitive recreation opportunities of hiking, hunting, nature study, sightseeing and photography would be preserved but not enhanced by wilderness designation.

Restrictions on access, prohibition of mineral material sales, limitations on new rangeland developments, and acquisition of surface and subsurface inholdings would also help to preserve the special features of lava flow geology and the ecological relationship of the lava flow and its flora and fauna.

Conclusion: Wilderness designation would preserve the area's naturalness and outstanding opportunities for solitude. Naturalness and solitude opportunities would increase on 10 percent of the area as a result of closing 6 miles of vehicle ways. Opportunities to study volcanic processes or melanistic species in a natural setting would also be maintained.

2. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 3 head per section per year (1,558 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include 15 miles of fence, 1 dirt tank, and 1 drinking trough. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy, with permits required when motorized vehicles or equipment are used. Minor repairs to the fences would have to be accomplished on horseback. Because of these restrictions, an inconvenience to the livestock operator would result.

Restriction of vehicular use, less than 100 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Under this alternative, it is assumed that one or two of the four proposed pipelines and troughs for the Cosimati allotment (3056) would not be implemented because of the cumulative impacts on the naturalness of the WSA. A site-specific environmental assessment (EA) would be prepared to determine if the proposed pipelines are necessary for the purpose of rangeland or wilderness protection. The EA would also be used to determine how many of the proposed pipelines could be implemented and their locations.

Conclusion: Impacts on livestock grazing use levels would not be significant. An inconvenience to the livestock operator would result from restricted vehicle access. One or two of the proposed pipelines may not be constructed, but this is not expected to affect livestock grazing use levels.

B. No Wilderness

Under the No Wilderness Alternative, the entire 25,287 acres of public land within the Aden Lava Flow WSA would be recommended unsuitable for wilderness designation.

If the WSA is not designated wilderness, it would be managed under the Southern Rio Grande Management Framework Plan (MFP) and the Las Cruces/Lordsburg MFP Amendment. These two plans prescribe livestock grazing and research and education as the primary use of the area. The area would also continue to be open to oil and gas leasing. The Aden Lava Flow RNA would be managed according to the objectives outlined in Chapter III, Education/Research and according to the Aden Lava Flow RNA Management Plan.

1. Impacts on Wilderness Values

Wilderness values and special features in the RNA would be maintained in the short-term. In the long-term, the extraction of slab lava rock for decorative stone could occur on the approximately 1,200 acres with high potential and 2,300 acres with moderate potential for mineral material sales. These activities would degrade natural values and opportunities for solitude in the east-central and southeast parts of the WSA. It is expected that from 5 to 10 mineral material sales would occur each year resulting in up to 5 acres of surface disturbance.

The installation of all four proposed pipelines and troughs on the Cosimati allotment (3056) could be authorized. These additional imprints of man would cumulatively degrade the natural values of the WSA.

Continued ORV access on vehicle trails along the northeast edge of the lava flow and on the vehicle trail through the southeast part of the WSA would periodically disrupt the solitude in these areas.

Conclusion. Wilderness values, especially naturalness and opportunities for solitude would be degraded by 10-15 percent in the long-term.

2. Impacts on Livestock Grazing Use Levels

Livestock grazing would continue at the levels currently existing (approximately 3 head per section per year).

All proposed rangeland developments could be constructed. Rangeland developments would be checked and maintained on a convenience basis using motorized equipment.

Conclusion: No impacts to livestock grazing use levels would occur under this alternative.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

Personal letters, form letters, and petitions were received on the Aden Lava Flow WSA during the public comment periods on the New Mexico Wilderness Review Initial Inventory Decisions (BLM 1979) and the New Mexico Wilderness Study Area Proposals (BLM 1980). This area was among the ten most commented upon proposed WSAs in the State. Maps and detailed narratives were among the data submitted.

Approximately 42 percent of the personal letters favored wilderness review of the Aden Lava Flow. Supporting reasons included the area's large size, apparent naturalness, outstanding opportunities for solitude and primitive recreation, and ecological and geological supplemental values.

Approximately 58 percent of the personal letters opposed wilderness review of the area. Opposing comments cited the roads and other imprints of man's activities as impacting naturalness and described opportunities for solitude as less than outstanding due to the outside sights and sounds of the Southern Pacific Railroad, Interstate 10, and the low level crossings of military aircraft. Aggregate minerals, oil and gas potential, geothermal energy potential, and grazing were identified as resource conflicts. One comment suggested that instead of a WSA designation, the Research Natural Area (RNA) could be expanded or the area could be designated an Area of Critical Environmental Concern (ACEC).

During the public comment period on the New Mexico Wilderness Supplemental Draft Environmental Assessment (BLM 1983), 29 personal inputs, 13 form letters, 1 petition with 15 signatures, and 52 coupons were received indicating support for wilderness designation of the Aden Lava Flow WSA. The form letters, coupons, petition, and 14 of the personal inputs listed no supporting reasons. There were no comments received opposing wilderness designation for the Aden Lava Flow WSA.

Many of the comments favoring wilderness designation were the same as those received in previous comment periods as described above. Several comments were made regarding the size and boundaries of the Aden Lava Flow WSA. One commentator felt that Kilbourne Hole or Phillip's Hole should have been included in the WSA and other inputs indicated support for designation of an area greater than the WSA.

Several comments pointed out that there is little designated wilderness in southern New Mexico and the Aden Lava Flow is important because of its close proximity to two Standard Metropolitan Statistical Areas (SMSAs)--Las Cruces, New Mexico, and El Paso, Texas.

The New Mexico Department of Game and Fish (NMDGF) indicated agreement with the All Wilderness Alternative, but felt a statement should be included that would allow "in the future the development of water, manipulation of habitat, and allow access to department personnel to manage the wildlife resource."

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The New Mexico Department of Agriculture's comments stated that the impacts to the range livestock industry for the Aden Lava Flow WSA were inadequately addressed.

Information was submitted by industry concerning the mineral potential of the Aden Lava Flow WSA.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Aden Lava Flow WSA and recommended wilderness designation for the entire WSA. Fifteen commentators specifically addressed the Aden Lava Flow WSA with 13 of those favoring wilderness designation.

During public scoping on the split-estate issue held in early 1986, 7 commentators specifically favored the addition of split-estate to the affected WSAs and 5 commentators opposed it.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Aden Lava Flow WSA by 211 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100-1

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "All of the boundaries of the Aden Lava Flow WSA were reevaluated and checked against the original inventory area proposal in the March, 1980 draft. The justification for the current boundary was to 'exclude portions of the unit lacking naturalness.' The Coalition finds, however, no significant man-made impacts in any of the excluded areas.'

Response: Portions of the original inventory unit were excluded from the Aden Lava Flow WSA by State Director decision in the New Mexico Statewide Wilderness Study Area Decisions. This decision was based on the presence of roads, ways, fences, pipelines, and water developments which impact the naturalness of the excluded area. There was no protest or appeal of the 1980 decision.

No. 0100-2

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "Finally, the east boundary of the West Potrillos in T. 26 S., R. 2 W., Section 34 is a little used way with no recent signs of blading or road construction. Likewise, no justification could be found for the west boundary of the Aden Lava Flow WSA in this section. The Coalition recommends that these boundaries be eliminated to form one large, diverse wilderness."

Response: During the intensive inventory, the road in section 34 was identified as a "road." The boundary for this portion of the West Potrillo Mountains WSA was placed at this road by decision of the State Director in the New Mexico Wilderness Study Area Decisions (November 1980). There was no protest or appeal of this decision by any conservation organization. The west boundary of the Aden Lava Flow WSA was placed in its present location based on the presence of roads, ways, fences, pipelines, and water developments which impact the naturalness of the area. This was also a State Director decision in the above mentioned document; there was no protest or appeal of this decision.

* * * * *

No. 0286-1

Name(s): New Mexico Farm and Livestock Bureau

Comment: "BLM does not follow their own agency definitions of certain words and phrases which are found in the 'BLM Road Definition' (Wilderness Inventory Handbook). For example, using BLM's own road definitions, the West Potrillo Wilderness Study Area (WSA) has over 60 miles of roads which were not inventoried by the BLM. The same is true for other WSAs such as Aden Lava Flow."

Response: The BLM Wilderness Inventory Handbook (BLM 1978) defines roadless as the "absence of roads which have been improved and maintained by mechanical means to insure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road." During the wilderness inventory, it was determined by BLM that the 72 miles of vehicle ways in the West Potrillo Mountains - Mount Riley and Aden Lava Flow inventory units did not meet the definition of a 'road.' Therefore these units were designated as WSAs. That decision was appealed to the Interior Board of Land Appeals (IBLA) by a number of individuals.

No. 0286-1 (concluded)

Partial basis for the appeal was that certain routes within the WSAs described as ways by BLM were indeed roads as defined by the Wilderness Inventory Handbook. The appeal was denied by the IBLA and BLM's decision that the WSAs were roadless was affirmed.

No. 0286-2

Name(s): New Mexico Farm and Livestock Bureau

Comment: "The naturalness of the Aden, West Potrillo, and Mt. Riley WSAs is impaired by railroads, an El Paso Natural Gas pumping station, a state prison, microwave towers, windmills, water storage tanks, working corrals, roads, powerlines, fences, and houses."

Response: Naturalness refers to the requirement in Section 2(c) of the Wilderness Act that a wilderness area "generally appears to have been affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable."

The railroad, El Paso Natural Gas pumping station, state prison, microwave towers, powerlines and houses are all outside the Aden Lava Flow, West Potrillo Mountains, and Mount Riley WSAs; and therefore have no impact on naturalness within the WSAs themselves. Rangeland developments including windmills, storage tanks, corrals and fences, are present within the three WSAs and are listed in the respective Wilderness Analysis Reports. BLM feels that in the WSAs as a whole, these developments are substantially unnoticeable and do not detract from the naturalness of the WSAs. Likewise, it is felt that the roads along the edge and those cherry-stemmed out of the WSAs and the vehicle ways within the WSAs do not significantly impact the naturalness of the three WSAs.

No. 0286-3

Name(s): New Mexico Farm and Livestock Bureau

Comment: "The Mt. Riley, West Potrillo and Aden WSAs lack solitude. Furthermore, as recreation use in these WSAs increases with wilderness designation, opportunities for solitude will diminish. Air traffic over these three WSAs is already excessive and destructive of solitude. In particular, low flying helicopters, military training, commercial flights, the Southern Pacific railroad (20 - 30 trains a day), and occasional military maneuvers are major factors in the lack of solitude in these WSAs."

No. 0286-3 (concluded)

Response: During the initial wilderness inventory, it was determined that the Aden Lava Flow, West Potrillo Mountains, and Mount Riley WSAs did offer outstanding opportunities for solitude. The BLM Wilderness Study Policy defines solitude as "the state of being alone or remote from habitations; isolation . . . the emphasis is on the opportunities a person has to avoid the sights, sounds, and evidence of other people within a particular WSA" Due to the size and topography of the WSAs, BLM feels that there is ample opportunity for solitude within the WSAs. BLM also recognizes the fact that outside sights and sounds do occasionally impact opportunities for solitude within the WSAs. However, it is felt that these impacts are not significant and do not detract from the overall quality of the solitude experience in the three WSAs.

Any use of the area by the military prior to wilderness designation would have to be consistent with the Interim Management Policy and Guidelines for Lands Under Wilderness Review. Should the area be designated wilderness, only use requiring a wilderness environment and of a low impact nature may be allowed. Use of motorized or mechanized equipment would be prohibited.

No. 0286-4

Name(s): New Mexico Farm and Livestock Bureau

Comment: "Primitive and unconfined recreation was judged by the BLM to be less than outstanding in the Aden, Mt. Riley and West Potrillo WSAs. Due to the proximity of these WSAs to several major metropolitan areas and the increasing number of WSA-users, primitive and unconfined recreation is a near impossibility."

Response: While primitive and unconfined recreation opportunities are less than outstanding in the Aden Lava Flow and Mount Riley WSAs, such opportunities are considered outstanding in the West Potrillo Mountains WSA due to the area's large size and blocked-up configuration.

As population increases in the nearby El Paso - Las Cruces area, use of the WSAs will likely increase. However, due to the large size of the WSAs, the dispersed nature of the recreation, and the accessibility of all portions of the WSAs, it is not expected that visitor use will have a negative impact on existing primitive and unconfined recreation opportunities.

ADEN LAVA FLOW

No. 0286-5

Name(s): New Mexico Farm and Livestock Bureau

Comment: "Inventories taken on the Aden Lava Flow, West Potrillo, and Brokeoff Mountains WSAs were incorrect and incomplete in the DEIS/NMSWS... For example, natural waterholes which were fenced and dirt tanks on the Aden Lava Flow WSA were not inventoried by the BLM."

Response: The original inventories did overlook a number of rangeland developments in the WSAs. In 1985 and 1986, rangeland developments in many of the WSAs were rechecked and the inventories were updated. Additional projects found were added to the inventories and all projects were double checked as to the accuracy of their identified location. These changes can be found on Table 5 in the WARS contained in this Final EIS.

* * * * *

No. 0274

Name(s): D. Schuhmann

Comment: "My first concern, as a resident of the Las Cruces area, is that there would be no wilderness areas designated near Las Cruces even though there are several WSAs that apparently have been dropped from consideration. Las Cruces is a rapidly growing area, and while many would argue that because of this, we need to make available all the land we can for growth and expansion, I believe that we need to establish some wilderness areas so that people in Las Cruces and the surrounding areas can have a wilderness experience without having to go over 100 miles to get there."

Response: Under the Proposed Action, the Organ Mountains WSA, the Aden Lava Flow WSA, and the West Potrillo Mountains and Mount Riley WSAs are all recommended suitable for wilderness designation. All of these WSAs are within 30 miles of Las Cruces.

APPENDIX 29

ALAMO HUECO MOUNTAINS WSA (NM-030-038)

I. GENERAL DESCRIPTION

A. Location

The Alamo Hueco Mountains Wilderness Study Area (WSA) is located in southeastern Hidalgo County in the "bootheel" part of New Mexico. The WSA is approximately 70 miles south-southeast of Lordsburg, New Mexico.

The U.S. Geological Survey (USGS) topographic map covering the WSA is the Dog Mountains, New Mexico quadrangle at the 15-minute scale.

B. Climate and Topography

The Alamo Hueco Mountains WSA is characterized by an arid, continental climate, with mild winters and pleasant to hot summers.

Average annual precipitation in the area is 9 to 10 inches, with locally larger amounts at higher elevations. A wide variation in annual precipitation is characteristic of arid climates. More than half of the moisture normally falls during July, August, and September from convective thundershowers that are commonly intense and of short duration.

During the summer months, daytime temperatures quite often exceed 100°F at elevations below 5,000 feet. The average monthly maximum temperature during July, the warmest month, is in the upper 90's. In January, the coldest month, the average monthly minimum temperature is in the upper 20's. Slightly cooler temperatures can be expected throughout the year at higher elevations.

Winds generally predominate from the southeast in summer and from the northwest in winter. Wind speeds are usually moderate. Spring is the windy season. Dry, gusty winds are predominantly from the west-southwest and may exceed 30 mph in the afternoons.

This WSA contains most of the Alamo Hueco Mountains. The Alamo Hueco Mountains are highly eroded volcanic mountains characterized by mesas and vertical cliffs with long, sinuous canyons. Elevations range from about 4,800 feet on the pediment slopes to 6,838 feet at the unnamed peak at the head of Black Canyon. The WSA encompasses most of Cottonwood Canyon, and portions of Black Canyon and Horse Canyon.

C. Land Status

The WSA contains 16,264 acres of public land including 2,610 acres of split-estate (Federal surface, non-Federal subsurface). There are 640 acres of State and 240 acres of private land within the WSA boundary. (See Map 29-1 for land status.)

ALAMO HUECO MOUNTAINS WSA (NM-030-038)

PROPOSED ACTION - NO WILDERNESS ALTERNATIVE

Legend

— WSA BOUNDARY

Land Status

BLM

PRIVATE

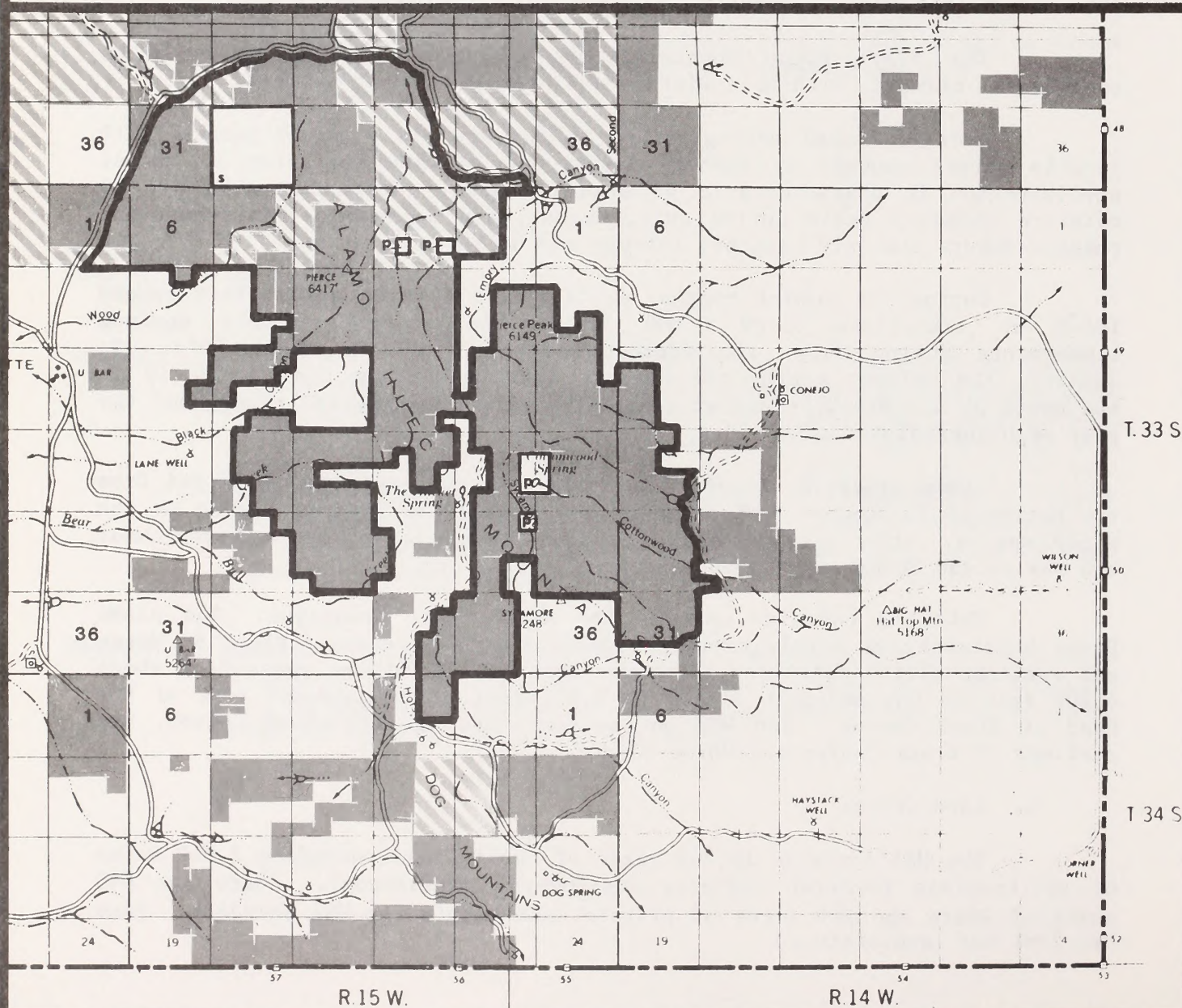
STATE

BLM SURFACE/NON BLM SUBSURFACE

Scale: 1/2 inch=1 mile

MAP 29-1 LAND STATUS

Source: USDI, BLM, Las Cruces District, April, 1986.



D. Access

There is no legal access to the Alamo Hueco Mountains WSA. The WSA is physically accessible on the west by a ranch road branching off State Highway 81, approximately 33 miles south-southwest of Hachita. Permission must be obtained from the private landowner, the Pacific Western Land and Cattle Company--U-Bar Division, to cross the private land surrounding the WSA.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis, as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A description of those actions associated with the proposal and alternatives is provided in Table 1. The proposed action for the Alamo Hueco Mountains WSA is the No Wilderness Alternative. This recommendation is based on the land status pattern in and around the WSA including the presence of 2,610 acres of split-estate land. The boundary around the southern two-thirds of the WSA is very convoluted with many "fingers" of public land surrounded by private land. Wilderness designation would have to be contingent upon acquiring substantial amounts of private land. Without acquisition, BLM does not feel it could manage the existing area to preserve its wilderness characteristics over the long-term.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
Expanding the WSA	This was not considered further because it would require consideration of lands not nominated for wilderness study and lands not protected by the BLM Interim Management Policy. However, the effects of expanding the boundary through acquisition of inholdings and adjacent lands was considered as a measure to enhance management of the area.
Designation of All or a Portion of the WSA as a Research Natural Area (RNA)	Certain management commitments made in the Big Hatchets-Alamo Huecos Habitat Management Plan, such as predator control, establishment of wildlife waters and mineral licks, and vegetation manipulation through controlled burns, would be in direct conflict with the objectives for a RNA.
Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
Impacts on Minerals	Although mineral resources were identified in the Las Cruces District EA and WAR as a significant issue, further evaluation shows there is low potential for the occurrence of such resources..
Impacts on the following threatened or endangered species: Night blooming cereus Shear pincushion cactus Coatimundi Thick-billed kingbird Varied bunting Giant spotted whiptail	Threatened or endangered species were not selected for detailed analysis because of the low potential for resource development. No species Federally-listed or proposed for Federal listing are known to occur in the area.
Impacts on Split-Estate Land	Split-estate land is not an environmental issue; however, it is addressed in Chapter IV as part of the discussion on manageability.
Alternatives Selected for Detailed Analysis	Reasons
All Wilderness	16,264 acres were identified during the inventory as having wilderness values.
No Wilderness (Proposed Action)	The No Action Alternative required by NEPA.
Environmental Issues Selected for Detailed Analysis	
Wilderness values and the impacts on livestock grazing use levels are the primary issues identified for this WSA.	
Concerns regarding livestock grazing use levels include the inconvenience to livestock operators from vehicle restrictions under wilderness designation, as well as an expected increase in vandalism and harassment to livestock if it is not designated wilderness.	

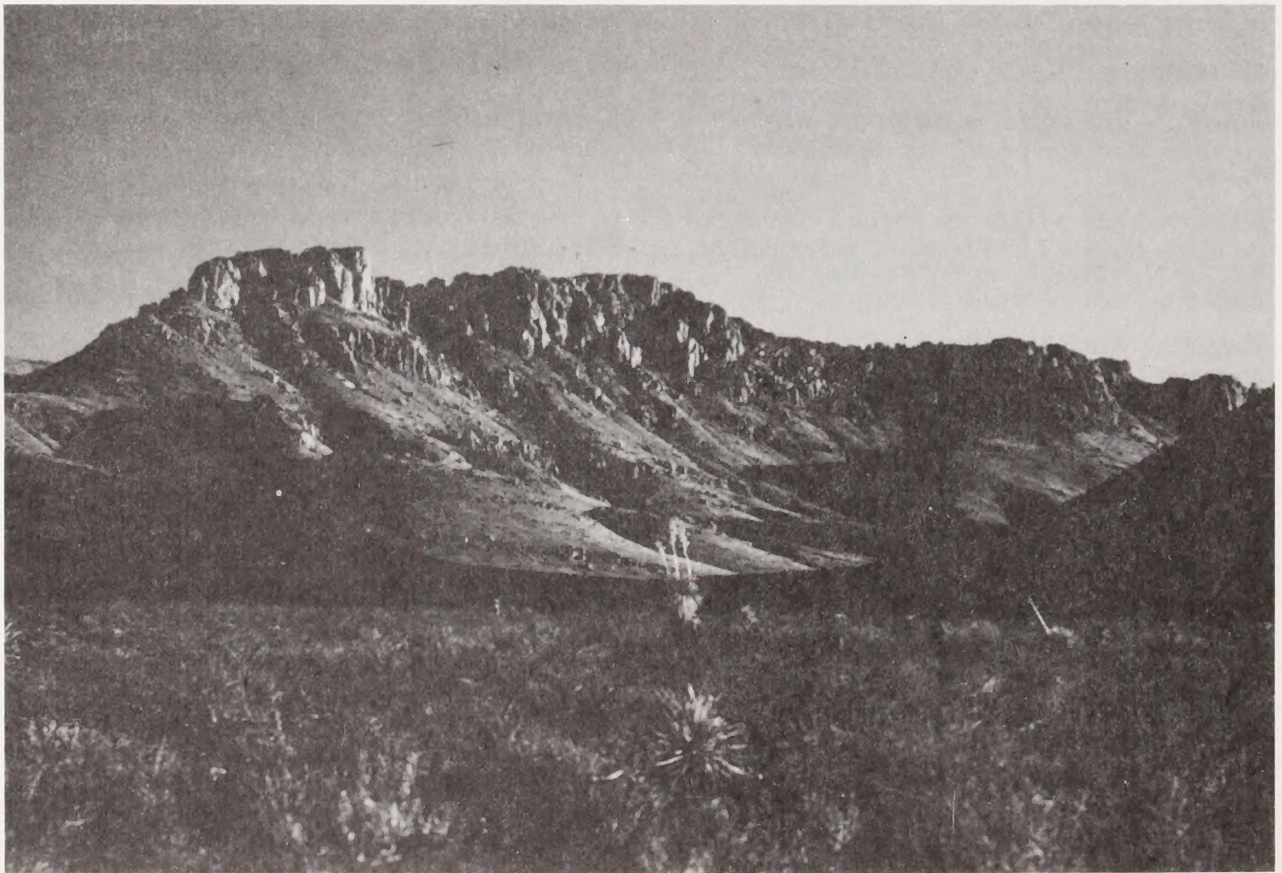
TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	No Wilderness (Proposed Action)
MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 16,264 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	MANAGE 16,264 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-Close 6 miles of vehicle ways which currently receive low use (less than 100 vehicles per year).	-Vehicle use on 6 miles of ways would be allowed to continue without restrictions. Use would be less than 100 vehicles per year.
-Require permits for vehicular access to 5 dirt tanks and 3 miles of fence. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.	-Vehicular access restrictions for maintenance of rangeland developments would not apply. Access for inspection and minor repairs would be allowed as needed and without restrictions.
-13,654 acres of Federal mineral estate would be closed to future oil and gas leasing and mining claim location.	-13,654 acres of Federal mineral estate would be open to oil and gas leasing with a protective stipulation allowing no surface occupancy if such occupancy disturbs the sheep.
	-13,654 acres of Federal mineral estate would be open to mining claim location.
-Mineral exploration or development is possible on valid existing claims and leases, but unlikely because of low potential.	-Mineral exploration or development is possible, but unlikely because of low potential.
-Reasonable access for exploration and development of 2,610 acres of non-Federal mineral estate would be permitted with consideration for protecting wilderness values.	-Access for exploration and development of 2,610 acres of non-Federal mineral estate would be permitted without consideration for wilderness values.
-Attempts would be made to acquire 640 acres of State land, 13,200 acres of private land, and 2,610 acres of non-Federal mineral estate to improve manageability.	-No special attempts would be made to acquire State and private lands.
-Current livestock grazing levels of approximately 11 head per section per year (3,506 AUMs) would continue.	-Current livestock grazing levels of approximately 11 head per section per year (3,506 AUMs) would continue.
-Desert bighorn sheep would be managed to achieve a herd size of 750 animals in the Alamo Hueco Mountains/Big Hatchet Mountains complex.	-Desert bighorn sheep would be managed to achieve a herd size of 750 animals in the Alamo Hueco Mountains/Big Hatchet Mountains complex.
-Proposed HMP projects such as water developments, predator control, maintenance of artificial mineral licks, and controlled burns of up to 2,500 acres could be implemented if they enhance wilderness values. It is anticipated that some projects would not be allowed.	-Proposed HMP projects such as water developments, predator control, maintenance of artificial mineral licks, and controlled burns of up to 2,500 acres would be implemented without consideration of wilderness values. There would be no restriction on vehicle access.

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TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives /Acreage	Major Environmental Issues Impacts On Wilderness Values
All Wilderness (16,264 acres)	Under wilderness designation, the area's existing naturalness, outstanding opportunities for solitude, special cultural features, outstanding scenic features, and oak/juniper woodland scrub ecosystem would be maintained. Land status pattern and boundary configuration would restrict availability of the area as wilderness.
No Wilderness (16,264 acres) (Proposed Action)	Wilderness values would likely be maintained in the short-term, however, new rangeland developments constructed to support livestock grazing operations and proposed wildlife habitat improvement projects such as water developments and prescribed burns would degrade by 10-15 percent the area's natural values and ecological and scenic features.



Overview of the Alamo Hueco Mountains WSA.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Alamo Hueco Mountains WSA lies within the Basin and Range physiographic province. This province is characterized by fault block mountains separated by basins filled with alluvial and shallow lake sediments. The Alamo Hueco Mountains are a horst block, bordered by the Playas Valley to the west and the Hachita Valley on the east.

There is little direct geologic evidence in the Alamo Hueco Mountains concerning events prior to the late Cretaceous period. The regional model suggests shallow marine sedimentation in the late Paleozoic Pedregosa Basin followed by erosion or nondeposition during early and middle Mesozoic times. Marine sediments were again deposited in Cretaceous times by northward advancing seas.

The Alamo Hueco Mountains consist of layered volcanic flows ranging in age from late Cretaceous to mid-Tertiary. The flows are of varying composition and are represented by numerous ash flows and andesitic flows, most of which are thought to have their origin in volcanic centers to the west (Erb 1979; Reiter 1980). Many of the formations can be correlated with formations to the west in the Animas, San Luis, and Pyramid Mountains.

Basin and Range tensional forces uplifted the Alamo Hueco fault block and produced the fault and joint patterns evident today. Basin and Range faulting appears to have extended into mid-Tertiary times. Erosion of the uplifted Alamo Hueco horst block has resulted in the present day topography.

B. Water

The Alamo Hueco Mountains WSA is situated within the Playas Basin, a noncontributing, closed basin. Drainage is towards the Playas Valley to the west and the Hachita Valley to the northeast. Ground water quality in both valleys is within recommended limits for livestock and wildlife use, as established by the National Academy of Sciences (BLM 1980).

Principal ephemeral streams to the west include Black, Bear, and Bull Creeks. These stream channels of the mountain canyons become indistinct along the lower alluvial fan slopes and follow a shallow course northward to Hatchet Gap. Several ephemeral streams drain the northeast side of the WSA onto the Hachita Valley. They include Cottonwood, Sycamore, and Horse Canyons. Sheet flow predominates as the channels become less distinct near the valley floor, and follows a slight gradient to the southeast towards the Mexican border. Surface flows in the ephemeral streams generally occur as a result of summer thundershowers.

C. Soils

Soils of the Alamo Hueco Mountains WSA were derived primarily from igneous parent bedrock types. The three major soil types occurring within the WSA are dependent on the landform on which they occur. The most

ALAMO HUECO MOUNTAINS

prevalent soil type occurs on steep hillsides where soils are shallow and stony. Exposed bedrock outcropping is common with the soil material being interspersed between the areas of rock outcropping. At lower elevations on mountain footslopes, soils are moderately deep to deep and typically are very gravelly on the surface.

D. Vegetation

1. General

The vegetation and associated range sites within the Alamo Hueco Mountains WSA consist of four types:

Vegetation Type	Range Site	Federal Acres
Juniper-oak brush	Mountains	12,315
Creosote	Gravelly	1,665
Mixed desert shrub	Gravelly loam	2,208
Deciduous trees	Gravelly sand	76

Juniper trees, oak brush, ocotillo, and sumac occur in the higher elevations and in protected canyons. Grass species (muhlys, gramas, threeawns, and tobosa) with other shrubs such as yucca, snakeweed, and mesquite occur on the mountain slopes down to the lower elevations.

Creosote is the dominant vegetation on gravelly sites in the flat areas located on the northern edge of the WSA. Associated shrub species are tarbush, mesquite, mariola, acacia, and snakeweed. Tobosa grass occurs in patches.

Mixed desert shrubs are the dominant vegetation on the gravelly loams in the southern part of the WSA. Vegetation is predominantly snakeweed, mesquite, tarbush, mariola, and creosote. Tobosa grass occurs in patches.

Deciduous trees and shrub species such as Arizona walnut, oak, hackberry, mesquite, box elder, seepwillow, and acacia occur on gravelly sands in the canyon bottoms. These are pseudoriparian areas and were identified as special habitat for wildlife.

2. Rare Plant Species

The following species were identified and located in or near the WSA (NMSHP and USFWS 1982; revised 1985).

Species: Cereus greggii - night blooming cereus

Status: Listed as endangered by the State of New Mexico, candidate for Federal listing.

Habitat: Widespread; does not grow commonly anywhere; needs the microhabitat associated with creosote and bush muhly.

Species: Coryphantha scheeri - Scheer pincushion cactus

Status: State-listed endangered.

Habitat: Open plains and flats; often in alluvial soils, 3,000-5,000 feet.

E. Wildlife

1. General

A number of factors combine in the Alamo Hueco Mountains to make it an extremely valuable area for wildlife. There are several habitat sites in the Alamo Hueco Mountains; grass mountain and mixed shrub mountain are the largest. Canyons which have patches of riparian vegetation such as sycamore trees intersect the mountain range. Springs and windmills are found in these areas. Although most of the canyons and the riparian habitat are on private land and outside the WSA boundary, they still strongly influence the wildlife within the WSA because of the close availability of water, cover, and food.

There are many cliffs and caves in the range. The area is isolated and very close to the Mexican border. These features also contribute to the unusual wildlife community. Golden eagles and red-tailed hawks are known to nest in the cliffs and prairie falcons probably do also (BLM 1981).

A good-sized population of javelina is found in the Alamo Hueco Mountains. In New Mexico, this species is only found in the southwestern part of the State.

Judging by reported mountain lion sightings in the area, this species also has a viable population in and around the WSA. Mountain lions have large home ranges, so there would not be many resident animals within the WSA; however, juveniles without territories might frequently travel through the area.

Other game species in the WSA are mule deer (more common at the edges of the area) and Montezuma quail. The latter are seen only infrequently.

A variety of nongame mammals, birds, reptiles, and amphibians have been recorded in the WSA.

2. Threatened or Endangered Fauna Species

Several threatened or endangered animal species have been verified in the Alamo Hueco Mountains and several more may be found there.

Historically, desert bighorn sheep, a State-listed endangered species, were reported in the area. In October 1986, the New Mexico Department of Game and Fish in cooperation with BLM reintroduced a herd of 21 desert bighorn sheep into the area.

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Other State endangered species reported in or near the WSA are the coatimundi, the thick-billed kingbird, the varied bunting, and possibly the giant spotted whiptail. All of these were reported from waters or riparian areas in the canyons, which are outside the WSA boundary. However, these areas are so intermingled with Federal land that the endangered animals might be found within the WSA (BLM 1981; Hayward et al. n.d.; Hubbard et al. 1979).

A Federally-listed species, the gray wolf, was historically found in the WSA. There have been unverified sightings of wolves over the last 10 years in the New Mexico "bootheel", but there is no reason to think they are in the Alamo Hueco Mountains on a regular basis (Carley 1982; Hayward et al. n.d.).

F. Visual

The Alamo Hueco Mountains have a Class A (high) scenic quality rating. The landform of the mountains consists of rough, craggy mesas with crumbling outcrops. The line in the landform consists of inclined or horizontal bands. Landform colors are a variety of deep shades of reddish-brown. Vegetation occurs in alternating bands of greenish-gray.

The Alamo Hueco Mountains are in a Visual Resource Management (VRM) Class II.

G. Cultural

Known prehistoric sites in and around the WSA consist of a number of very significant cave sites with stratified deposits and a series of camp sites in the flat valley bottoms. The caves in these mountains have been identified as an area eligible for the National Register of Historic Places as an archaeological district. Some of the caves are significant on the national level because they contain stratified deposits that have materials in them that usually are not found in exposed sites (e.g., basketry, cloth, vegetable remains, and other perishables). In addition, cave sites are very rare in this portion of the Southwest. These caves can provide significant information concerning little known artifact types and prehistoric environmental data.

Historically, the mountains were first visited by the Spanish in a military campaign led by Hugh O'Connor in 1774. Later, there was considerable homesteading in the mountains and they were used during Pershing's incursion into Mexico.

H. Air

Generally, the quality of air within the Alamo Hueco Mountains WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

Emissions from the Phelps-Dodge Copper Smelter, located approximately 5 miles northwest of the WSA in the Playas Valley, could slightly lower the air quality of the area. This could only occur if weather conditions are such that lower quality air is trapped by an inversion layer which eventually drifts over the WSA.

The only other major degradation of air quality occurs during the spring months (March-May), when west-prevailing winds (commonly gusting in excess of 30 mph) result in dust storms throughout the southern part of the State.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

Map 29-2 shows the approximate locations of mining claims and lands under mineral leases.

1. Energy Minerals

A protective stipulation is presently attached to all energy minerals leases let within the WSA. The primary purpose of the stipulation is to protect the desert bighorn sheep and its habitat. The Alamo Hueco Mountains WSA is wholly within the desert bighorn sheep habitat area. The stipulation generally states that surface use or occupancy could be prohibited or restricted if such use or occupancy would adversely affect the desert bighorn sheep or its habitat.

As of April 15, 1986, there was one post-Federal Land Policy and Management Act (FLPMA) oil and gas lease in the WSA.

a. Oil and Gas

The Alamo Hueco Mountains WSA lies within the Pedregosa Basin, a relatively unexplored frontier of oil and gas exploration in New Mexico. This area has attracted much interest because of the stratigraphic similarities of its Paleozoic section with that of the Permian Basin in southeastern New Mexico. The presence of potentially good source and reservoir rocks at depth, combined with favorable geologic structures, makes this area of the Pedregosa Basin a prime exploration target. However, structural complexities and thick deposits of Tertiary volcanic rocks are limiting factors in possible petroleum occurrences in this region.

Although much of the pediment and bolson area adjacent to the WSA does have moderate oil and gas potential, most of the WSA does not appear to be favorable due to the thick sequence of volcanic rocks in the Alamo Hueco Mountains. The Humble No. 1 State well which was drilled about 3 miles northwest of the WSA to a depth of 14,585 feet, had a reported gas flow of 500,000 cubic feet per day (Greenwood 1970). Several energy companies (including ARCO, Exxon, Texaco, May, Placid, and Getty) have expressed interest in the Alamo Hueco vicinity. Geophysical exploration has occurred on pediments adjacent to the WSA. Low-lying areas within the WSA nearest the pediment have a low potential for oil and gas. These areas are too near the thick volcanic core of the Alamo Hueco Mountains to warrant a higher rating.

b. Geothermal

Travertine deposits in the Alamo Hueco Mountains area may indicate a potential for geothermal energy; however, in the absence of other favorable geologic indicators, the potential appears to be low.

ALAMO HUECO MOUNTAINS WSA (NM-030-038)

PROPOSED ACTION - NO WILDERNESS ALTERNATIVE

MAP 29-2 MINING CLAIMS AND MINERAL LEASES

Legend

— WSA BOUNDARY

0/10 Pre- FLPMA Mining Claims Per Section
Post- FLPMA Mining Claims Per Section



Post- FLPMA Oil and Gas Lease

Land Status

BLM

PRIVATE

STATE

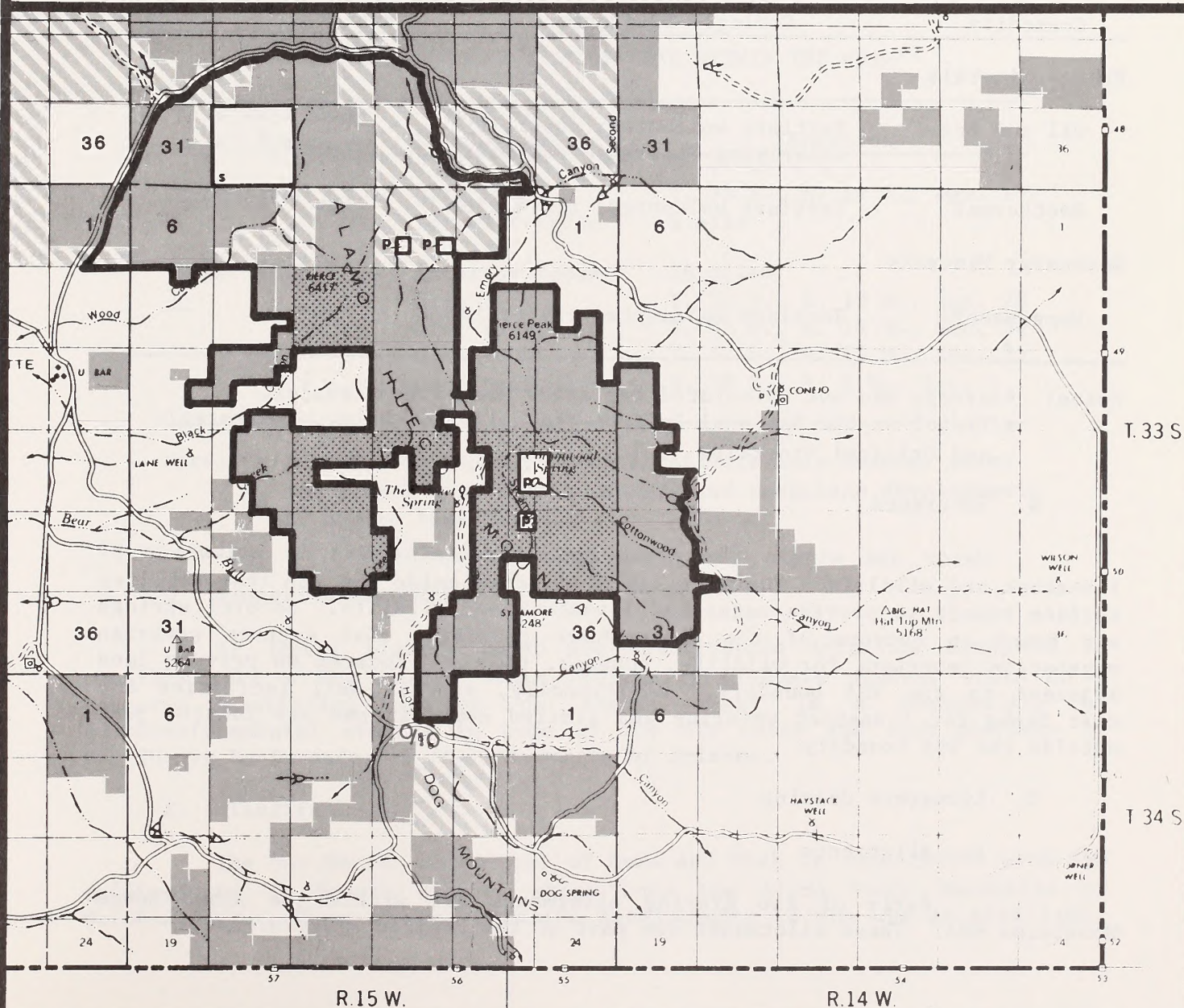
BLM SURFACE/NON BLM SUBSURFACE

FLPMA was passed October 21, 1976.

(Claim information from BLM records dated April 15, 1986; claims which overlap more than one section are counted in each section in which they occur.)

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



2. Nonenergy Minerals

As of April 15, 1986, there were 10 mining claims recorded with BLM in the WSA, all of which are post-FLPMA.

Minor manganese mineralization occurs with travertine deposits in the Bluff Creek formation in the area between the Alamo Hueco Mountains and Dog Mountains south of the WSA. Psilomelane bands up to 1 inch thick are present in 2-3 foot beds of travertine. A small prospect pit was dug in T. 34 S., R. 15 W., Section 11, SE $\frac{1}{4}$, south of the WSA. However, there are no known manganese occurrences in the WSA. The potential for manganese resources in the WSA is low.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE ALAMO HUECO MOUNTAINS WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals			
Oil and Gas	Tertiary volcanics; possible underlying Paleozoic sediments	Low	--
Geothermal	Tertiary volcanics; travertine	Low	--
Nonenergy Minerals			
Manganese ^{a/}	Tertiary volcanics; travertine	Low	--

Notes: *Acreage was not calculated for areas with low potential.

^{a/}Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

B. Watershed

Water use within the Alamo Hueco Mountains WSA is primarily by livestock and wildlife. There is one dirt tank inside the WSA that utilizes surface runoff to provide water for livestock and wildlife. Several springs are found in canyons of the Alamo Hueco Mountains that support riparian vegetation important for wildlife, however, they are located on private land adjacent to the WSA boundary. Additionally, several well facilities and dirt tanks for livestock watering and limited domestic use are located just outside the WSA boundary.

C. Livestock Grazing

1. Allotments

Parts of two grazing allotments are within the Alamo Hueco Mountains WSA. These allotments are part of the Pacific Western/Phelps-

Dodge Corporation's U-Bar Ranch. Some areas in the WSA are ungrazed due to the steep slopes and distance from livestock water developments. Licensed grazing use on public land includes cattle and a few horses.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
U-Bar 1510	19,896	4,548	10,405	2,365	52%
U-Bar 2022	39,006	7,608	5,859	1,141	1%
TOTAL			16,264	3,506	

2. Ranch Management

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development	Location
U-Bar 1510	dirt tank interior fence	T. 33 S., R. 14 W., Sec. 19 ½ mile
U-Bar 2022	interior fence dirt tank dirt tank dirt tank dirt tank	2½ miles T. 32 S., R. 15 W., Sec. 28 T. 32 S., R. 15 W., Sec. 34 T. 32 S., R. 15 W., Sec. 35 T. 33 S., R. 6 W., Sec. 1

Note: ^{a/}Information shown in tables reflects only Federal acres and animal unit months (AUMs), and rangeland developments on public land.

D. Education/Research

If desert bighorn sheep are reintroduced into the area, it is possible that a New Mexico State University graduate student would do a research monitoring project on them. There is a possibility of paleoenvironmental studies in some of the dry caves and rock shelters by Dr. Thomas VanDevender of the University of Arizona.

E. Wildlife

The New Mexico Department of Game and Fish in cooperation with BLM reintroduced 21 desert bighorn sheep into the Alamo Hueco Mountains in October 1986. There are no wildlife developments in the WSA at this time,

ALAMO HUECO MOUNTAINS

but the Big Hatchets-Alamo Huecos Habitat Management Plan (BLM 1982) contains proposals to construct water developments for desert bighorn sheep, control predators, maintain artificial mineral licks, and possibly manipulate vegetation through controlled burns. It may be necessary to allow access by helicopter for construction of these waters.

Six windmills and three springs are located on private land, less than $\frac{1}{2}$ mile from the WSA. As mentioned in Chapter II, Wildlife, these are used by wildlife in the WSA.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The Alamo Hueco Mountains WSA generally appears natural. Imprints of man on public land within the WSA consist of 5 dirt tanks and two-track vehicle ways in drainages. These imprints are substantially unnoticeable due to the topographic screening provided by the rugged terrain. Rangeland developments outside the WSA boundary on private land in Horse Canyon, Emory Canyon, and on Bull Creek are also substantially unnoticeable because of topographic screening. The outstanding scenic values of the Alamo Hueco Mountains further enhance the area's natural character.

b. Solitude

Outstanding opportunities for solitude exist throughout the Alamo Hueco Mountains. These opportunities are primarily a result of the rugged topography. The Alamo Hueco Mountains are dissected by numerous steep canyons which provide excellent opportunities to escape the sights and sounds of others. Although not all of the major canyons are Federally-owned, outstanding opportunities for solitude are available within the WSA.

c. Primitive and Unconfined Recreation

The Alamo Hueco Mountains offer outstanding opportunities for primitive and unconfined recreation. The scenery, geology, vegetation, wildlife, and cultural values of these mountains result in an exceptional primitive recreation resource. Specific opportunities include hiking, nontechnical rock climbing, backpacking, hunting, photography, and sightseeing.

These opportunities are limited by the land ownership patterns surrounding the WSA. Because of the convoluted public land configuration, it is difficult for visitors to fully utilize the recreation resources of the Alamo Hueco Mountains without trespassing on private land. This would cause conflicts with the private landowner and the lessees of the private land. Since there is no legal access to the Alamo Hueco Mountains WSA, recreationists could not be ensured of access to the area.

2. Special Features

The Alamo Hueco Mountains WSA contains special ecological, cultural, and scenic features.

The ecological features include both vegetation and wildlife values of scientific and educational interest. The Alamo Hueco Mountains provide habitat for two plant species listed as endangered by the State,



Cougar hunter in the Alamo Hueco Mountains.

one of which is also a candidate for Federal listing (see Chapter II, Vegetation). The Alamo Hueco Mountains are an extremely valuable area for wildlife and support a variety of game and nongame species. The number of habitat sites in the WSA, the special habitat features such as cliffs and caves, and the isolation of the area and its proximity to the Mexican border all contribute to its value for wildlife. Five State endangered animal species have been reported in or near the area (see Chapter II, Wildlife).

The cultural features of the Alamo Hueco Mountains WSA are also of scientific and educational value. Caves in and around the WSA have been identified as eligible for the National Register of Historic Places as an archaeological district (see Chapter II, Cultural).

The Alamo Hueco Mountains also have outstanding scenic features with a Class A (high) scenic quality rating (see Chapter II, Visual).

Future projects of scientific and educational value planned in this WSA include monitoring the reintroduced desert bighorn sheep and paleoenvironmental studies in dry caves and rock shelters (see Chapter III, Wildlife and Education/Research).

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Alamo Hueco Mountains WSA as being in the Mexican Highlands Shrubsteppe Province with a potential natural vegetation of oak-juniper woodland.

The general nature of the Bailey-Kuchler System fails to show the vegetation variety and diversity of the WSA. Further refinement of the system shows the following vegetation types in the WSA:

<u>Vegetation Type</u>	<u>Acres</u>
oak juniper woodland scrub	12,391
creosote	1,665
Trans-Pecos shrub savanna	2,208

b. Distance From Population Centers

The Alamo Hueco Mountains WSA is approximately 4 hours driving time from El Paso, Texas; 3 hours from Las Cruces, New Mexico; 6 hours from Albuquerque, New Mexico; 4 hours from Tucson, Arizona; and 6 hours from Phoenix, Arizona.

B. Manageability

The manageability of the Alamo Hueco Mountains WSA is significantly affected by the surrounding land status patterns.

The land status in the Alamo Hueco Mountains is a mosaic of private and public lands. As a result, the boundary around the southern two-thirds of the WSA is very convoluted, consisting of many "fingers" of public land surrounded by private land. Nonwilderness or nonconforming uses on the adjacent private land in the long-term would negatively affect the naturalness of the WSA, opportunities for solitude, and the supplemental values of the area. It is expected that additional rangeland developments would be constructed on the adjacent private land in support of livestock grazing operations. At the present time, it is not anticipated that oil and gas exploration would occur on the immediately surrounding private land due to the economic conditions in the industry. However, if economic conditions improve or new information changes the favorability rating for oil and gas,

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exploration would likely occur. Opportunities for primitive recreation are negatively impacted by the convoluted boundary in that it is almost inevitable that a visitor hiking through the southern portion of area must hike across private land.

The split-estate land in the northwest portion of the WSA also present a potential manageability problem. BLM is required to provide reasonable access to private inholdings, including subsurface inholdings within wilderness areas. Any development of the subsurface estate would result in surface disturbance and would require overland access. Management of the surface area as wilderness could not be assured if development were to occur. However, it is unlikely that any development would occur, unless industry conditions improve or new information changes the favorability rating for oil and gas.

Because of the land status patterns in and around the Alamo Hueco Mountains WSA, the BLM would have difficulty managing the existing area to preserve its wilderness characteristics over the long-term. Management of the Alamo Hueco Mountains as wilderness would be facilitated by the acquisition of surrounding non-Federal lands. Should the area be designated wilderness, the lands legally described below should be considered for voluntary acquisition.

<u>Legal Description</u>	<u>Acres</u>
State Land	
T. 32 S., R. 15 W., Section 32, All	640
Private Land	
T. 33 S., R. 14 W., Section 7, NW $\frac{1}{4}$, S $\frac{1}{2}$	480
Section 8, SW $\frac{1}{4}$	160
Section 17, All	640
Section 18, N $\frac{1}{2}$ NW $\frac{1}{4}$, E $\frac{1}{2}$	400
Section 19, NE $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$	120
Section 20, S $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$	240
Section 29, N $\frac{1}{2}$ SW $\frac{1}{4}$	80
Section 31, SW $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$	240
T. 33 S., R. 15 W., Section 2, E $\frac{1}{2}$, S $\frac{1}{2}$ SW $\frac{1}{4}$	400
Section 3, NE $\frac{1}{4}$ SW $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$	80
Section 7, NE $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$, W $\frac{1}{2}$, SE $\frac{1}{4}$	600
Section 8, W $\frac{1}{2}$, N $\frac{1}{2}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$	440
Section 11, N $\frac{1}{2}$ NE $\frac{1}{4}$, W $\frac{1}{2}$	400
Section 12, NE $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SE $\frac{1}{4}$	240
Section 13, E $\frac{1}{2}$ NE $\frac{1}{4}$	80
Section 14, W $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	120
Section 15, SE $\frac{1}{4}$ SE $\frac{1}{4}$	40
Section 16, All	640
Section 17, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$	240
Section 18, N $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$, W $\frac{1}{2}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$	560

<u>Legal Description</u>	<u>Acres</u>
Private Land (continued)	
T. 33 S., R. 15 W., Section 19, All	640
Section 20, W $\frac{1}{2}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$	160
Section 21, NE $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$	120
Section 22, SE $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$	280
Section 23, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{4}$, S $\frac{1}{2}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$	320
Section 24, SW $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$	80
Section 26, NE $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ W $\frac{1}{2}$, SE $\frac{1}{4}$	360
Section 27, NW $\frac{1}{4}$ NE $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$	440
Section 28, SW $\frac{1}{4}$ SW $\frac{1}{4}$	40
Section 29, NW $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$, E $\frac{1}{2}$ SE $\frac{1}{4}$	320
Section 30, S $\frac{1}{2}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$	120
Section 32, All	640
Section 33, All	640
Section 34, N $\frac{1}{2}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$	320
Section 35, E $\frac{1}{2}$ E $\frac{1}{2}$	160
Section 36, All	640
T. 34 S., R. 14 W., Section 6, SW $\frac{1}{4}$	160
T. 34 S., R. 15 W., Section 1, All	640
Section 2, All	640
Section 3, E $\frac{1}{2}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$	280
TOTAL	13,200
Non-Federal Subsurface (Mineral) Estate	
T. 32 S., R. 15 W., Section 27, W $\frac{1}{2}$ NW $\frac{1}{4}$	80
Section 28, E $\frac{1}{2}$	320
Section 29, N $\frac{1}{2}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$	120
Section 30, N $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$	240
Section 31, E $\frac{1}{2}$ NE $\frac{1}{4}$	80
Section 33, NE $\frac{1}{4}$ NE $\frac{1}{4}$	40
Section 34, All	640
Section 35, S $\frac{1}{2}$ S $\frac{1}{2}$	160
T. 33 S., R. 15 W., Section 2, NW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$	240
Section 3, N $\frac{1}{2}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SW $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$	560
Section 4, N $\frac{1}{2}$ N $\frac{1}{2}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$	280
Section 5, E $\frac{1}{2}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ SW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$	280
TOTAL	3,040

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 16,264 acres of public land within the Alamo Hueco Mountains WSA would be recommended suitable for wilderness designation. (See Map 29-1 for WSA boundary.)

If the WSA is designated wilderness, the existing uses and activities in the area and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the BLM's Wilderness Management Policy (WMP) (BLM 1981).

1. Impacts on Wilderness Values

Under the All Wilderness Alternative, the WSA's existing naturalness and the outstanding opportunities for solitude provided by the area's rugged topography would be maintained in the long-term. The outstanding opportunities for hiking, backpacking, hunting, rock climbing and other forms of primitive recreation would also be maintained in the long-term; however, these opportunities would continue to be limited by the land ownership pattern surrounding the WSA. Wilderness designation would also provide long-term protection for the recently reintroduced desert bighorn sheep herd and other State-listed endangered animals and plants in the area, and for the cave sites containing archaeological values. However, due to the surrounding private land, the Alamo Hueco Mountains WSA would be difficult to manage to preserve the existing wilderness resources in the long-term. Due to the moderate oil and gas potential in the surrounding valleys and foothills, and the petroleum industry's interest in the area, it is expected that oil and gas exploration drilling would occur on the adjacent private land in the long-term. As a result of the outside sights and sounds of nonwilderness uses on the adjacent private land, there would be adverse impacts on the area's natural values, opportunities for solitude, and the special features of the WSA. However, it is expected that these impacts would be of short duration. The exercise of private rights in oil and gas exploration on split-estate land would impair naturalness in the northern portion of the WSA. However, exploration is not expected in the short-term unless economic conditions change or new data change the favorability rating for mineral occurrence in the area.

Land status patterns would also affect the capability of the BLM to provide outstanding opportunities for primitive recreation. Since there is no legal access to the WSA and because of the convoluted public land configuration, visitors would be unable to fully utilize the recreation resources of the Alamo Hueco Mountains. However, this may not be a significant impact if bighorn sheep are reestablished in the area since it may be necessary and desirable to restrict visitor use in order to minimize disturbance to the sheep.

Conclusion. Under the All Wilderness Alternative, the naturalness, outstanding opportunities for solitude and primitive recreation, and special features of the WSA would be protected in the long-term. Short duration impacts on wilderness values would result from

surface-disturbing activities on adjacent private land. Oil and gas exploration on split-estate land would impair naturalness in the northern part of the WSA.

2. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 11 head per section per year (3,506 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include 3 miles of fence and 5 dirt tanks. New range facilities are not planned.

Generally, motorized access within the designated wilderness would not be allowed. However, a permit for vehicular access for maintenance purposes to the existing 3 dirt tanks within the WSA boundary on the U-Bar allotment (1510) could be authorized if there were no practical alternatives. Permits could also be issued for vehicular access to rangeland developments on private land where the existing access routes cross lands within the WSA, such as the two dirt tanks in T. 33 S., R. 15 W., Section 22. Use of motor vehicles on existing vehicle trails to check livestock would not be permitted. Checking livestock on foot or horseback could result in less effective livestock management due to the inconvenience and time requirements and could affect operation costs depending on the use normally made of vehicle trails.

Restriction of vehicular use, less than 100 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Conclusion: Because of restricted vehicular access, an inconvenience to the livestock operator would result. There would be no impacts on current livestock grazing use levels.

B. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the 16,264 acres of public land comprising the Alamo Hueco Mountains WSA would be recommended unsuitable for wilderness designation.

If the WSA is not designated wilderness, it would be managed according to the Las Cruces/Lordsburg Management Framework Plan (MFP) Amendment (BLM 1984). This plan prescribes livestock grazing and energy mineral leasing as primary uses of the area. In addition, a wildlife habitat management plan (HMP) which covers the Alamo Hueco Mountains was approved by BLM and the New Mexico Department of Game and Fish in 1983.

No new rangeland developments were identified for the WSA in the Las Cruces/Lordsburg MFP Amendment. However, it is likely that new rangeland developments would be proposed and constructed in subsequent land use planning cycles.

At the present time, there is only one oil and gas lease in the WSA. The entire WSA would be open to leasing with a stipulation to protect desert bighorn sheep and sheep habitat. The stipulation states in part that "The lessee is given notice that all or part of the lease area contains special values, . . . Any surface use or occupancy within such areas is strictly prohibited unless the lessee/operator demonstrates that the area is essential to adequately explore for or develop oil or gas, the lessee/operator submits a surface use and operations plan, and the surface management agency finds the proposed surface occupancy or use does not . . . adversely affect the resources protected by the restriction." Although the surrounding valleys and foothills have moderate potential for oil and gas, the WSA has low potential. Unless economic conditions change or new information changes the favorability rating, exploration for oil and gas in the WSA is not expected. It is projected that oil and gas exploration including the drilling of test wells would occur in the surrounding foothills and valleys in the long-term.

Under the Big Hatchets-Alamo Huecos HMP, wildlife habitat in the Alamo Hueco Mountains is being managed to benefit desert bighorn sheep. Specific actions prescribed to protect desert bighorn and improve habitat include predator control, construction of artificial waters, maintenance of artificial mineral licks, and controlled burns of up to 2,500 acres to improve composition of the natural vegetation.

In the 16,264 acres not designated as wilderness, unavoidable adverse effects would result from future surface disturbance activities. Cumulative short-term consumptive uses of this land would lead to long-term degradation of wilderness values. Nondesignation of 16,264 acres as wilderness would leave this acreage available for development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

Under the No Wilderness Alternative, the WSA's existing naturalness and outstanding opportunities for solitude provided by the area's rugged topography would be maintained in the short-term. Likewise, the area's outstanding opportunities for primitive recreation and special wildlife and cultural features would be maintained in the short-term. In the long-term, it is expected that these values would be degraded by as much as 10-15 percent. The installation of wildlife habitat improvement projects as prescribed in the Big Hatchets - Alamo Huecos HMP and the construction of new rangeland developments in the long-term would degrade naturalness, opportunities for solitude, and scenic values of the area. Vehicle ways constructed in support of these projects would also impact the area's naturalness and opportunities for solitude.

The reestablishment of a self-sustaining herd of desert bighorn sheep in the mountains would enhance the special wildlife features of the WSA. The sheep would benefit from the projects and actions prescribed in the HMP. In addition, the stipulation on oil and gas leases in the area prohibiting surface occupancy if such use or occupancy disturbs the bighorn sheep would also provide a means of protection from potentially disturbing activities.

Because of the moderate oil and gas potential in the surrounding valleys and foothills and the petroleum industry's interest in the area, it is expected that oil and gas exploration drilling would occur on the adjacent private land in the long-term. As a result of the outside sights and sounds of nonwilderness uses on the adjacent private land, there would be adverse impacts on the area's opportunities for solitude. However, it is expected that these impacts would be of short duration.

Conclusion. Wilderness values would be substantially maintained in the short-term, but the quality would diminish by 10-15 percent over the long-term as a result of wildlife habitat management projects, new rangeland developments, and oil and gas exploration in adjacent areas.

2. Impacts on Livestock Grazing Use Levels

Livestock grazing use levels of approximately 11 head per section per year (3,506 AUMs) would continue.

Motorized access would be allowed. All rangeland developments could be checked and maintained on a convenience basis using motorized equipment. Grazing permittees would be allowed to use vehicles on existing trails to check livestock.

Conclusion. There would be no impacts to current livestock grazing use levels under this alternative.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

Personal letters, form letters, and petitions were received on the Alamo Hueco Mountains WSA during the public comment periods on the New Mexico Wilderness Review Initial Inventory Decisions (BLM 1979) and the New Mexico Wilderness Study Area Proposals (BLM 1980). Maps, photographs, road affidavits, and data on the Pedregosa Basin were included with the comments.

Approximately 60 percent of the personal letters favored wilderness review of the area. Supporting comments cited the size, naturalness, and outstanding opportunities for solitude and primitive recreation as justification. The area's outstanding scenery, cultural values, and abundance of wildlife species were listed as supplemental values.

Approximately 40 percent of the personal letters opposed wilderness review. Existing rangeland developments and access routes were cited as impacts on naturalness. The irregular shape of the WSA and land status patterns were identified as manageability problems. Another comment suggested that wilderness designation would attract many visitors resulting in overuse and deterioration of the wilderness resource. Oil and gas potential and mining were listed as resource conflicts.

During the public comment period on the Draft Environmental Assessment Wilderness Study Areas in the Las Cruces District (BLM 1983), 21 personal letters, 4 form letters, 1 petition with 15 signatures, and 52 coupons were received indicating support for wilderness designation of the Alamo Hueco Mountains WSA. The form letters, petition, coupons, and five of the personal letters listed no supporting reasons.

Several of the comments favoring wilderness designation reiterated supporting reasons mentioned in previous public review periods such as natural values, and solitude and primitive recreation opportunities. Several respondents indicated support for wilderness designation of an area larger than the WSA. The acreage figures cited ranged from 10,000 to 25,000 acres. There were no maps or discussions of alternative boundaries included with these comments.

Many of the pro-wilderness comments addressed the special features of the Alamo Hueco Mountains WSA. These comments cited the area's scenic, geologic, cultural, wildlife, and botanic values as reasons for favoring wilderness designation. These comments noted that the area "is uniquely situated with respect to transitional ecological zones" and is "extremely valuable for endangered species."

Several respondents commented on specific manageability issues analyzed in the Wilderness Analysis Report (WAR). Comments regarding the area's lack of legal access consisted of the following observations: "legal access could easily be arranged via swaps or easements" and "the lack of legal access is of benefit because of the added protection it provides for the area." Several respondents acknowledged the potential manageability

conflicts caused by land status patterns and the area's resulting convoluted boundary and suggested that the area offers "an excellent opportunity for land exchanges to create wilderness."

Pro-wilderness comments on the area's oil and gas potential generally reflected the attitude that the WSA should be protected and mineral resources developed elsewhere.

Four personal letters were received in opposition to wilderness designation of the Alamo Hueco Mountains WSA. Two of these public inputs listed no reasons. Other comments cited the mineral potential of the area as justification for a nonsuitable wilderness recommendation.

The Phelps-Dodge Corporation submitted a voluminous document including photos and maps. Many of the comments in the document submitted by Phelps-Dodge addressed what they considered deficiencies in the New Mexico Wilderness Supplemental Draft Environmental Assessment (BLM 1983). Only those substantive comments addressing the Alamo Hueco Mountains WAR are summarized here.

Phelps-Dodge disagreed with the discussion of impacts to wilderness values if the area were left open for mineral activities as described under the No Action/No Wilderness Alternative. The Phelps-Dodge comments stated that the discussion failed to acknowledge that "only a small fraction of these areas would even be touched by any mineral activity" and "most areas which are affected are touched only by exploration activities which are easily rehabilitated." In addition, Phelps-Dodge comments asserted that the document should at least recognize that the extent of disturbance caused by both hard rock and leasable mineral activities can be closely controlled by the BLM regulations applying to those activities.

Phelps-Dodge suggested that the discussion of Energy Minerals in Chapter III be clarified to indicate that potentially good oil and gas lands lie within the WSA boundary. Phelps-Dodge also disputed statements in this section of the Draft WAR that some geophysical exploration programs in the Alamo Hueco Mountains have been suspended because of the high cost of exploration on private land. Phelps-Dodge also indicated strong agreement with the BLM's evaluation of the WSA's manageability.

Two respondents made general comments indicating that in lieu of wilderness designation, the area should receive some form of special designation. The New Mexico Natural History Institute indicated that they "would like to see a special wildlife protection area or perhaps a research natural area in about 4,000 acres of the Alamo Hueco Mountains." Another comment stated that "Although BLM is not proposing the Alamo Huecos as wilderness, I urge you to retain its natural features and archaeological values under BLM's administrative regulations."

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3

million-acre wilderness proposal advocated by the New Mexico Wilderness coalition. Alternative W included the Alamo Hueco Mountains WSA and recommended wilderness designation for the entire WSA plus adjacent land. Specific comments were directed to the Alamo Hueco Mountains WSA by 127 commentators, of which 123 supported wilderness designation.

During public scoping on the split-estate issue held in early 1986, 7 commentators specifically favored the addition of split-estate to the affected WSAs and 5 commentators opposed it.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Alamo Hueco Mountains WSA by 49 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100-1

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The second, and primary, reason given for recommending against the Alamo Huecos was the surrounding land status and convoluted boundary. The Coalition agrees that this could be a potential problem, but one with a solution. With the reinstating of the split-estate and separated BLM lands on the north end, there is now a 'blocked-up' area of approximately 8,800 acres. This north half would not have any of the management or recreation problems that were identified in the WSA previously.

The south half of the WSA still exists in a convoluted form, but 14,160 acres of private land have been recommended for acquisition or exchange to solve this problem. While these private lands may not be available immediately, the Coalition recommends designation of the entire area; with the northern half being available for limited recreation and easy management and the southern half being managed as best as possible until the surrounding lands can be acquired. The BLM's excuse that the area cannot be managed as wilderness because of land-status configuration is not valid; otherwise how can it be managed for any of the other multiple uses currently mandated?"

Response: It is BLM's position that the public land in the Alamo Hueco Mountains WSA could not be managed to preserve existing wilderness values over the long-term. The BLM lacks the authority to regulate mineral activities on split-estate and non-Federal inholdings. The convoluted configuration of the WSA boundary resulting from the area's land status patterns would further complicate BLM's ability to manage the Alamo Hueco Mountains WSA as wilderness.

No. 0100-1 (concluded)

It is the BLM's policy to make wilderness suitability recommendations based on the characteristics of the public land within the WSA boundary. Although land acquisitions that would enhance the wilderness values or manageability of a WSA are identified in the WARs, suitable recommendations are not contingent upon the acquisitions; a WSA must be suitable on its own merits.

No. 0100-2

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "In the 1986 WAR, several items were listed as the justifications for the amended boundary in the Big Hatchets and the no-wilderness recommendation in the Alamo Huecos. One of the reasons common to both areas was to reduce conflicts with potential oil and gas resources . . .

With the amended boundary alternative in the Big Hatchet Mountains, 20,498 acres would be made available to oil and gas leasing. . . . If the 20,498 acres are released, only a total of five exploratory wells are predicted to be drilled ever in this area. Finally, the 1986 WAR states that under the all-wilderness option 'no impact on development (to the oil and gas industry is) anticipated . . . no production is anticipated to occur.'

Alamo Hueco Mountains WSA has an even much lower potential for oil and gas than the Big Hatchets . . . In summary, the BLM's use of oil and gas conflicts as a justification for dropping much of the Big Hatchets and all of the Alamo Huecos is not defensible."

Response: The primary reason for the amended boundary recommendation in the Big Hatchet Mountains WSA is to reduce potential conflicts with oil and gas exploration and possible development in an area of moderate potential for oil and gas resources. As stated in the WAR, based on current information, production of oil and gas from the Big Hatchet Mountains WSA is not expected; therefore, no impact on development is anticipated. However, oil and gas exploration would be expected to occur without wilderness designation. If the entire WSA was designated wilderness and a discovery was made in an area adjacent to the WSA, which is rated as having moderate potential, energy minerals would be impacted in the long-term because opportunities to fully evaluate areas of moderate oil and gas potential would be foregone.

Conflict with potential oil and gas resources is not a reason for the no wilderness recommendation for the Alamo Hueco Mountains WSA. The presence of 2,610 acres of non-Federal mineral estate could cause conflicts with wilderness management of the area, but

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No 0100-2 (concluded)

oil and gas potential on the split-estate land is low as it is in the rest of the Alamo Hueco Mountains WSA. The primary reason for not recommending the Alamo Hueco Mountains WSA suitable for wilderness designation is the land status patterns in the area and the manageability problems associated with it. The BLM could not manage the area as wilderness without substantial acquisition of private land.

* * * * *

No. 0138

Name(s): Robert Tafaanelli, New Mexico BLM Wilderness Coalition

Comment: "The Alamo Huecos have the qualities . . . all of the qualities that wilderness is supposed to have . . . the only problem seems to be the convoluted boundary in the south end and somewhat on the east end, which would mean there would be problems of recreational management, persons going out there wouldn't be sure whose land they're on. And I would like to present an alternative.

When only the northern portion of the WSA is considered, the boundary is not convoluted but rather fairly well compact. And that comprises about 8,500 acres, and this area could be managed for recreation and the remainder of the area that is convoluted could be closed to the public until such a time, if and when, some of the private lands could be acquired and the area blocked off in better fashion."

Response: It is BLM's position that the public land in the Alamo Hueco Mountains WSA could not be managed to preserve existing wilderness values over the long-term. The BLM lacks the authority to regulate mineral activities on split-estate and non-Federal inholdings. The convoluted configuration of the WSA boundary resulting from the area's land status patterns would further complicate BLM's ability to manage the Alamo Hueco Mountains WSA as wilderness.

It is the BLM's policy to make wilderness suitability recommendations based on the characteristics of the public land within the WSA boundary. Although land acquisitions that would enhance the wilderness values or manageability of a WSA are identified in the WARs, suitable recommendations are not contingent upon the acquisitions; a WSA must be suitable on its own merits.

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No. 0588

Name(s): Kevin O'Brien

Comment: "In Chapter Three, the section on Special Features needs to be updated now that bighorn sheep have been introduced into the Alamo Hueco Mtns., WSA. (The Alamo Huecos WAR will also need to be revised to consider the existence of the sheep.)"

Response: The Alamo Hueco Mountains WAR and Volume 1 of the Revised Draft EIS have been revised to show that 20 desert bighorn sheep were reintroduced into the mountains in October 1986.

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No. 0681

Name(s): Leo Griego, New Mexico Natural Resources Department

Comment: "The Alamo Hueco Mountains WSA is being recommended as nonsuitable for wilderness with no other special management alternative. The Summary of Scoping Table lists both an RNA for the Oak Juniper Woodland Shrub Ecosystem and an ACEC for cultural resources as alternatives that were set aside in favor of the no wilderness recommendation. NRD recommends that BLM reassess their decision for the WSA and manage the area as an RNA or ACEC in order to protect the unique qualities of the area."

Response: An alternate designation such as a Research Natural Area (RNA) or Area of Critical Environmental Concern (ACEC) was not considered in detail because it was felt that such a designation was not appropriate for this study. The primary issue to be considered in the Wilderness Study EIS was the suitability or nonsuitability of the WSAs for wilderness designation (see Planning Issue Section and Criteria Section in Chapter 1, Volume 1 of this Final EIS). Special management designations are evaluated through the resource management plan (RMP) process. An ACEC or other special management designation for the Alamo Hueco Mountains as well as other areas will be considered in the Las Cruces/Lordsburg RMP scheduled to begin in 1988.

APPENDIX 30

BIG HATCHET MOUNTAINS WSA (NM-030-035)

I. GENERAL DESCRIPTION

A. Location

The Big Hatchet Mountains Wilderness Study Area (WSA) is located in southeastern Hidalgo County in the "bootheel" part of the State of New Mexico. The WSA is approximately 50 miles south-southeast of Lordsburg, New Mexico.

The U.S. Geological Survey (USGS) topographic map covering the WSA is the Big Hatchet Peak, New Mexico quadrangle. This map is at the 15-minute scale.

B. Climate and Topography

The Big Hatchet Mountains WSA is characterized by a semiarid continental climate, with mild winters and pleasant to hot summers. Significant differences in climatic conditions are associated with changes in elevation and exposure.

Average annual precipitation in the area is 10 to 12 inches, with locally larger amounts at higher elevations. A wide variation in annual precipitation is characteristic of southern desert climates. Approximately half the annual precipitation occurs in July, August, and September as rain accompanying thundershowers. The showers are generally brief but may be intense and result in flash floods in the arroyos. Snowfall generally averages about 5 inches a year.

During the summer months, daytime temperatures quite often exceed 100°F at elevations below 5,000 feet. Average monthly maximum temperature during July, the warmest month, is in the upper 90's. In January, the coldest month, average monthly minimum temperature is in the middle 20's. Elevation is a significant factor in determining the temperature of any specific locality. Generally, for each 1,000-foot increase in elevation, there is a little more than a 3° decrease in temperature.

Winds generally predominate from the southeast in summer and from the northwest in winter, but local surface wind directions will vary greatly because of local topography. Spring is the windy season. Dry, gusty winds are predominantly from the west-southwest and may exceed 30 mph in the afternoons.

This WSA consists of the Big Hatchet Mountains, portions of the Hachita Valley on the northeast, and the Playas Valley on the southwest. The Big Hatchet Mountains are a northwest-southeast trending mountain range characterized by very rugged and steep terrain. Elevations vary from about 4,400 feet up to 8,366 feet at Big Hatchet Peak. Major canyons within the Big Hatchet Mountains include Thompson Canyon and Sheridan Canyon.

BIG HATCHET MOUNTAINS

C. Land Status

The WSA contains a total of 65,872 acres of public land. Total inholdings within the WSA consist of 1,920 acres of State land, 46 acres of private land (patented mining claims), and 5,853 acres of split-estate land (Federal surface and non-Federal subsurface (mineral) estate). (See Map 30-1 for land status within the WSA boundary.)

The Big Hatchet Mountains WSA complex is divided into three roadless areas by the location of roads and State land. The largest of these areas, encompassing Big Hatchet Peak, contains 46,152 acres of public land including 4,693 acres of split-estate land. Inholdings include 1,280 acres of State land and the 46 acres of private land.

The second area is east of the Sheridan Canyon road and includes 14,480 acres in the southeast part of the Big Hatchet range. There are 640 acres of State land inholdings in this area.

The third area is located in the south-central part of the mountain range. It is separated from the other two areas by the Sheridan Canyon road and State land. This area contains 5,240 acres of public land including 1,160 acres of split-estate land.

D. Access

There is no legal access to the Big Hatchet Mountains WSA. The best physical access is by way of the ranch road branching east-southeast off of State Highway 81 at Hatchet Gap, approximately 15 miles southwest of Hachita. This road leads into a system of ranch roads forming the north and east boundaries.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis, as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A description of those actions associated with the proposal and alternatives is provided in Table 1. The proposed action for the Big Hatchet Mountains WSA is the Amended Boundary Alternative. The area recommended suitable for wilderness designation totals 45,374 acres and encompasses the Big Hatchet Mountain range where the majority of the WSA's wilderness values and special features are concentrated. The remaining 20,498 acres recommended unsuitable substantially reduce potential conflicts with oil and gas resources.

Under this alternative, it may be necessary to limit visitor use of the area to minimize disturbance to the desert bighorn sheep in the Big Hatchet Mountains. This is one of the few remaining desert bighorn

populations in the State. It is a very fragile population and the sheep appear to be easily disturbed and stressed by the presence of people.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
Expanding the WSA to include approximately 19,500 acres south and east of WSA.	This alternative was not considered further because it would require consideration of lands not qualifying for wilderness study as a result of the wilderness inventory.
Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
Impacts on Locatable Minerals	Impacts to locatable mineral development was not selected for detailed analysis because areas of moderate potential for base and precious metals and gypsum is quite small and economic development is not likely to occur. The majority of the WSA has no or low mineral development potential.
Impacts on the following State-listed threatened or endangered species: Night blooming cereus Scheer pincushion cactus Sonora mountain kingsnake	Threatened or endangered species were not selected for detailed analysis because no species Federally-listed or proposed for Federal listing are known to occur in the area. An analysis of potential impacts to the State-listed species would be required for any surface disturbing activities.
Impacts on developing split-estate land	Rights associated with split-estate land is not an environmental issue since those rights will continue to exist if the area were to be designated wilderness. However, it is addressed in Chapter IV as part of the discussion of manageability.
Alternatives Selected for Detailed Analysis	Reasons
All Wilderness	65,872 acres were identified during the inventory as having wilderness values.
Amended Boundary (Proposed Action)	This alternative was evaluated to reduce resource conflicts and manageability conflicts.
No Wilderness	The No Action Alternative required by NEPA.
Environmental Issues Selected for Detailed Analysis	
Impacts on the quality of the area's wilderness values, impacts on the State endangered desert highorn sheep, impacts on exploration and development of oil and gas, and impacts on livestock grazing use levels were identified as primary issues of concern during the initial scoping activities for this WSA. Issues regarding the desert bighorn sheep included the supplemental value of the sheep and the concern that wilderness designation would limit management options for the sheep.	

BIG HATCHET MOUNTAINS WSA (NM-030-035)

PROPOSED ACTION - AMENDED BOUNDARY ALTERNATIVE

Legend

- WSA BOUNDARY
- - - AMENDED BOUNDARY

Land Status

- BLM
- PRIVATE
- STATE
- BLM SURFACE/NON BLM SUBSURFACE

MAP 30-1
LAND STATUS

Scale: 1/2 inch=1 mile

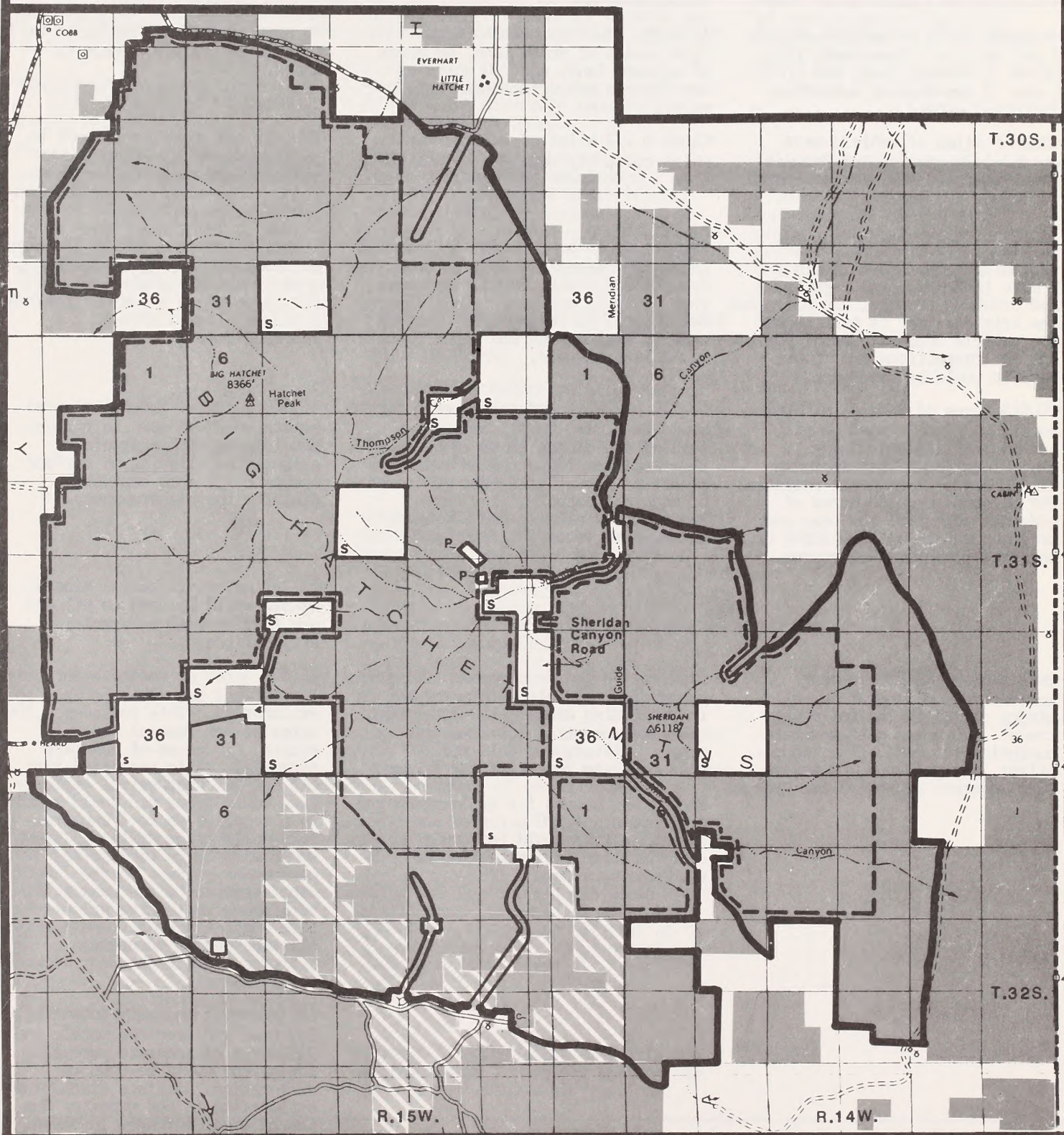


TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 65,872 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 45,374 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:	MANAGE 65,872 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:
-Attempts would be made to acquire 6,840 acres of State land, 126 acres of private land, and 5,853 acres of non-Federal subsurface (mineral) estate.	-Attempts would be made to acquire 6,560 acres of State land, 46 acres of private land, and 200 acres of non-Federal subsurface (mineral) estate.	-No special attempts would be made to acquire State and private lands.
-Close 8 miles of vehicle ways which currently receive low use (less than 100 vehicles per year).	-Close 6 1/2 miles of vehicle ways which currently receive low use (less than 100 vehicles per year).	-Vehicle use would be allowed to continue on 6 1/2 miles of vehicle ways without restrictions. Use would be less than 100 vehicles per year.
-Permits would be required for vehicular access to maintain 9 dirt tanks and 4 storage tanks and drinking troughs. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.	-Permits would be required for vehicular access to maintain 4 storage tanks and troughs and 9 dirt tanks. No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repairs would be precluded.	-Vehicular access restrictions for maintenance of rangeland developments would not apply. Access for inspections and minor repairs would be allowed without restrictions.
-60,019 acres of Federal mineral estate would be closed to oil and gas leasing and mining claim location. This includes 11,700 acres of moderate potential for oil and gas, 180 acres of moderate potential for base and precious metals and 200 acres of moderate potential for gypsum.	-45,170 acres of Federal mineral estate would be closed to oil and gas leasing and mining claim location. This includes 100 acres of moderate potential for oil and gas, 180 acres of moderate potential for base and precious metals, and 200 acres of moderate potential for gypsum.	-44,670 acres of Federal mineral estate would be open to oil and gas leasing with a special stipulation allowing no surface occupancy if such occupancy disturbs the bighorn sheep.
-Exploration and development activities could occur on valid mining claims in the following areas: 180 acres with moderate potential for lead, zinc, copper, silver, and gold and 200 acres with moderate potential for gypsum.	-Exploration and development activities could occur on valid mining claims in the following areas: 180 acres with moderate potential for lead, zinc, copper, silver, and gold and 200 acres with moderate potential for gypsum. Reasonable access for exploration and development of 200 acres of non-Federal mineral estate would be permitted with consideration for protection of wilderness values.	-15,349 acres of Federal mineral estate would be open to oil and gas leasing with no special stipulations. -15,800 acres of moderate potential for oil and gas would be open to exploration. This includes 4,100 acres of non-Federal mineral estate. In areas of moderate potential, it is projected that oil and gas geophysical exploration would occur and would result in a total of up to 5 exploratory wells being drilled. There would also be up to 11 miles of new access roads. On the 7,000 acres covered by the desert bighorn sheep protective stipulation surface occupancy would not be allowed if such occupancy disturbs bighorn sheep or degrades their habitat. -180 acres of moderate potential for base and precious metals and 200 acres of moderate potential for gypsum would be open to exploration. Surface disturbing exploration is not expected due to the small acreages involved.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES
(concluded)

All Wilderness	Amended Boundary (Proposed Action)	No Wilderness
-Current livestock grazing levels of approximately 7 head per section per year (8,274 AUMs) would continue.	-Current livestock grazing levels of approximately 7 head per section per year (5,699 AUMs) would continue.	-Current livestock grazing levels of approximately 7 head per section per year (8,274 AUMs) would continue.
-Visitor use would be restricted if such use adversely impacted desert bighorn sheep.	-Visitor use would be restricted if such use adversely impacted desert bighorn sheep.	
-Proposed HMP projects such as water developments, predator control, maintenance of artificial mineral licks, and controlled burns could be allowed if they enhance wilderness values. It is anticipated that some projects would not be allowed.	-Proposed HMP projects such as water developments, predator control, maintenance of artificial mineral licks, and controlled burns of up to 2,500 acres could be allowed if they enhance wilderness values. It is anticipated that some projects would not be allowed. °MANAGE 20,498 ACRES WITHOUT WILDERNESS PROTECTION. THE FOLLOWING ACTIONS WOULD BE TAKEN: -No special attempts would be made to acquire non-Federal lands. -Vehicle use would be allowed to continue. Use is estimated to be less than 100 vehicles per year. -14,645 acres of Federal mineral estate would be open to oil and gas leasing. Approximately 7,000 acres would be covered by a special stipulation allowing no surface occupancy if such occupancy disturbs the desert bighorn sheep. The remaining 7,645 acres would be open with no special stipulation. A total of 11,600 acres of the area open has moderate potential for oil and gas. It is projected that up to 3 exploratory wells would be drilled in areas of moderate potential. Motorized vehicle activity would increase. Up to 30 acres of surface would be disturbed and up to 6 miles of new road would be constructed.	-Helicopter access to wildlife waters and mineral licks would be allowed. Proposed HMP projects such as water developments, predator control, maintenance of artificial mineral licks, and controlled burns of up to 2,500 acres would be allowed.
-Reasonable access for exploration and development of 5,853 acres of non-Federal mineral estate including 4,100 acres of moderate potential for oil and gas would be permitted with consideration for protection of wilderness values. In areas of moderate potential, it is expected that up to 2 exploratory wells would be drilled.	-Exploration and development of 5,653 acres of non-Federal mineral estate including 4,100 acres of moderate potential for oil and gas would not be restricted. In areas of moderate potential, it is expected that up to 2 exploratory wells would be drilled resulting in 15 acres of disturbance and up to 5 miles of new road. -Current livestock grazing levels of approximately 7 head per section per year (2,575 AUMs) would continue.	

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues		
	Impacts on Oil and Gas Exploration and Development	Impacts on Desert Bighorn Sheep	Impacts on Wilderness Values
All Wilderness (65,872 acres)	No impact on development anticipated. Permanently eliminate mineral exploration on 11,700 acres of moderate potential for oil and gas. 4,100 acres of non-Federal mineral estate with moderate potential for oil and gas could be explored. It is projected that up to a total of 2 exploratory wells would be drilled in areas of moderate potential. Activities would be regulated to cause the least impact to wilderness values. Based on the oil and gas potential, the lack of producing wells in the general area, and the low number of potential exploratory drill holes in the WSA, no production is anticipated to occur.	Restrictions of wilderness management would provide legislative protection for 44,670 acres of desert bighorn sheep habitat, enhancing long-term opportunities for an increase in the current bighorn sheep population of 85 animals to approximately 150 in the future.	Wilderness designation would protect the high quality naturalness, outstanding opportunities for solitude and primitive recreation, the desert bighorn sheep herd, and the high quality scenery of the Big Hatchet Mountains. Naturalness and opportunities for solitude would be adversely impacted by oil and gas exploration on non-Federal mineral estate.
Amended Boundary (45,374 acres recommended suitable, 20,498 acres recommended unsuitable) (Proposed Action)	No impact on exploration or development. Permanently eliminate mineral exploration on 100 acres of moderate potential for oil and gas. Mineral exploration is anticipated to occur on 11,600 acres of Federal mineral estate with moderate potential for oil and gas. Mineral exploration is also expected to occur on 4,100 acres of non-Federal estate with moderate potential for oil and gas. Unless economic conditions change or new data change the favorability classification, development is not projected.	Wilderness management would provide legislative protection for 37,993 acres of desert bighorn sheep habitat, enhancing opportunities for an increase in the bighorn sheep population. Oil and gas exploration and development could prevent sheep movement between Big Hatchet and Alamo Hueco Mountains thereby reducing the potential increase to approximately 100 animals.	The central portion of the Big Hatchet Mountains WSA which is essentially natural, has outstanding opportunities for solitude and primitive recreation and provides habitat for the desert bighorn sheep. The herd would be protected as described under the All Wilderness Alternative. Naturalness and solitude opportunities would be lost on 24,579 acres recommended unsuitable.
No Wilderness (65,872 acres)	No significant impact.	Oil and gas exploration and development could reduce bighorn sheep population levels by up to 20 percent below those existing before exploration and development begins.	Naturalness and solitude would be impacted by oil and gas geophysical activities and exploration drilling in areas of moderate potential as described in the Amended Boundary Alternative. Installation of proposed habitat improvement projects and rangeland development would degrade natural values. Overall naturalness and solitude opportunities would be diminished by 30-40%.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The Big Hatchet Mountains WSA is located within the Pedregosa Basin, a late Permian sedimentary basin compared by some geologists (Greenwood 1977; Wengard 1970) to the hydrocarbon-rich Permian Basin of southeast New Mexico and West Texas. A major difference between the two areas, however, is the location of the Pedregosa Basin within the Basin and Range physiographic province, an area that underwent extensive faulting during Tertiary-Recent time. Additionally, many areas within the Pedregosa Basin were subjected to Cenozoic volcanic activity, particularly to the south and west of the Big Hatchet Mountains.

In early Paleozoic times, the area now known as the Big Hatchet Mountains was inundated by seas advancing from the southwest. Marine sediments were deposited throughout the Paleozoic era with only minor interruptions. The early and middle Mesozoic era was characterized by nondeposition or erosion, indicating possible regional uplifting. Shallow seas advanced from the south in the early Cretaceous period and another series of marine sediments were deposited in the area, followed by the accumulation of terrestrial sediments. The total thickness of the stratigraphic section in the Big Hatchet Mountains is 20,000 feet, three-quarters of which are marine in origin (Zeller 1965).

Late Cretaceous (Laramide) thrust-faulting and folding in the Big Hatchet Mountains area was followed by high-angle normal faulting and finally by Basin and Range type normal faulting. The Big Hatchet Mountains were uplifted along normal faults and tilted eastward (Zeller 1975). Erosion of this uplifted fault block has produced the present day topography.

B. Water

The Big Hatchet Mountains WSA is situated within the Plavas Basin, a noncontributing, closed basin. Drainage is towards the Plavas Valley to the southwest and the Hachita Valley to the northeast.

Several ephemeral streams drain the western side of the WSA and generally follow a shallow, indistinct course northward to Hatchet Gap through which water flows during times of exceptionally heavy precipitation. Principal ephemeral streams to the northeast include Thompson and Sheridan Canyons. Both streams empty into the Hachita Valley which has a slight gradient to the southeast towards the Mexican boundary. Surface flows generally occur as a result of summer thundershowers.

Ground water in the WSA is derived from the alluvial deposits of the valley fill. The limestone, shale, and sandstone of marine origin in the Big Hatchet Mountains are relatively impermeable and are not aquifers. Ground water underlying the Hachita Valley moves southeastward into Mexico. In the central valley, water is normally around 100 feet below the surface. In the upland area, the depth to water exceeds 500 feet. Ground water underlying the Plavas Valley moves northward towards Hatchet Gap, and depth

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to water is generally less than 200 feet. The water table of the Plavas Valley is considerably above that of the Hachita Valley near the gap, and it is likely that some water moves through the gap when the water table is high. The ground water reservoir is recharged mainly by infiltration in stream channels during flood runoff. Ground water quality is within recommended limits for livestock and wildlife use, as established by the National Academy of Sciences (BLM 1980).

C. Soils

Soils of the Big Hatchet Mountains WSA vary depending on the particular landform on which they occur. Shallow, stony soils on steep slopes are the most common and occur at higher elevations of the Big Hatchet Mountains. These soils are commonly interspersed between areas of exposed limestone bedrock and outcroppings. At lower elevations on footslopes and alluvial fans at the base of the mountains, soils are deeper, have a gravelly surface, and commonly have a layer of calcium carbonate (caliche) under the surface.

D. Vegetation

1. General

The vegetation and associated range sites within the Big Hatchet Mountains WSA consist of six major types:

Vegetation Types	Range Sites	Federal Acres
Pinyon-juniper - mixed mountain shrub	Mountains	28,752
Creosote	Gravelly	34,024
Mixed desert shrub	Gravelly sand	316
Tobosa-tarbush	Clayey	2,420
Tobosa	Draws (swales)	338
Mesquite	Sandy	22

The Big Hatchet Mountains dwarf surrounding mountain ranges and appear as an island in this region. Pinyon-juniper is the dominant vegetation in the higher mountain elevations around Big Hatchet Peak (BLM 1980). On the mountain slopes and surrounding hills, vegetation consists of a mixed mountain shrub aspect including sumac, agave, buckbrush, beargrass, oak, mountain mahogany, spicebush, snakeweed, mariola, ocotillo, yucca, and creosote. Grass species (gramas, tobosa, muhlys, needle and thread, threeawns, and tridens) are also abundant.

Creosote is the dominant vegetation on gravelly areas surrounding the mountain range. Shrub species that characterize this area are snakeweed, mariola, sumac, ocotillo, graythorn, mesquite, and tarbush. Grass species include bush muhly, threeawns, tobosa, fluffgrass, and tridens.

Mixed desert shrub occurs on gravelly sand areas in the sandy arroyos of canyon bottoms. These are pseudoriparian areas and have been identified as special habitat for wildlife. Shrub and tree species include Wright's silktassel, agave, beargrass, pale wolfberry, Fendlerbush, oak, acacia, juniper, Apacheplume, and mountain mahogany. Grasses include gramas and tridens.

Tobosa grass and tarbush are the dominant vegetation on the deep clayey areas on the west and south sides of the WSA. Creosote invades these areas from the adjacent gravelly sites. Other shrub species include sumac, graythorn, and fourwing saltbush. Associated grasses are burro grass and bush muhly.

Tobosa draw (swale) areas occur on the south side of the WSA. Tobosa occurs in small dense patches with alkali sacaton, burro grass, and vine-mesquite. Invading shrub species are mesquite, snakeweed, tarbush, and creosote.

Mesquite prevails on a small sandy area in the southern part of the WSA. Other associated shrub species are fourwing saltbush and snakeweed.

2. Rare Plant Species

The following species were identified and located in or near the WSA (NMSHP and USFWS 1982; revised 1986).

Species: Cereus greggii - night blooming cereus

Status: Listed as endangered by the State of New Mexico; candidate for Federal listing.

Habitat: Widespread; does not grow commonly anywhere; needs the microhabitat associated with creosote and bush muhly.

Species: Coryphantha scheeri - Scheer pincushion cactus

Status: There are three varieties; two are Federal candidate species, all varieties are State-listed endangered.

Habitat: Open plains and flats; often in alluvial soils, 3,000-5,000 feet.

E. Wildlife

1. General

Most of the Big Hatchet Mountains WSA is a mixed shrub mountain habitat site with some significant pockets of pinyon-juniper grass mountain and pseudoriparian sites. Creosote sites occur at the lower elevations.

Cliffs are abundant and important in the range because they provide habitat for nesting raptors and a host of smaller wildlife. Limestone formations such as those in the Big Hatchet Mountains have many caves which are shelter to a variety of wildlife ranging from mountain lions to various species of bats.

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Because most of the country around the Big Hatchet Mountains is a lower-elevation, desert shrub landscape, the range has the effect of being an island. Not only do the mountains support a completely different fauna than the surrounding desert, but they are a stopover point for wide-ranging wildlife such as mountain lions (which find a good source of food and cover) and migrating birds.

The resident wildlife population is varied because of the changes in elevation, habitats, and soils within the WSA. An assortment of birds ranging from the mountain-dwelling scrub jay to the desert-dwelling black-throated sparrow could be expected within the WSA.

The New Mexico Department of Game and Fish (NMDGF) has specified the Big Hatchet Mountains as a mule deer herd unit. They expect the optimal population size to be five deer per square mile; presently there are less than this. There is also a javelina population in the WSA. Donaldson (1965) estimated their numbers at 43 animals in 1962.

2. Threatened or Endangered Fauna Species

Desert bighorn sheep are the most significant wildlife feature of the WSA. They are a State-listed endangered species. Bighorn sheep were once abundant in the Big Hatchet Mountains. In the early 1950's, as many as 125 to 150 bighorn sheep lived in the Big Hatchet Mountains, using nearly all of the range. Several years of severe drought in the late 1950's and the resultant competition with deer and domestic livestock decimated the herd. By the early 1960's, less than 25 bighorn sheep remained. Their numbers have stayed low since; this can probably be attributed to predation.

The NMDGF and BLM have committed themselves to the survival of this herd. In 1979, the NMDGF built a paddock in Romney Canyon, 1½ miles west of Big Hatchet Peak and put 11 bighorn sheep from the Redrock Game Farm into this paddock. Historically, this was a bighorn sheep use area. The idea behind this move was not only to supplement the existing herd, but to induce the bighorn sheep to remain in an unused portion of the range. The native herd stays in the southern part of the range and frequently crosses several miles of desert to reach a mineral lick in the Cairn Hills. This desert crossing appeared to make the bighorn sheep vulnerable to predation. It is hoped that the introduced bighorn sheep will stay in the paddock area and not travel to the Cairn Hills. Thus far, the experiment appears successful. The introduced bighorn sheep have moved south toward the indigenous bighorn sheep, probably for breeding, but return to the Hatchet Peak area afterwards. As of July 1985, the introduced herd had increased to an estimated 60 animals. Use by this herd is concentrated in the Big Hatchet Peak area.

Historically, the gray wolf, a Federal-listed species, was found in all of the "boot heel" country of New Mexico, including the WSA. However, there are no recent documented sightings in the Big Hatchet Mountains. The species barely survives, even in Mexico.

A State-listed species, the Sonora mountain kingsnake, was collected in the Big Hatchet Mountains. This species is tied to moist conditions such as those found in canyons.

F. Visual

The Big Hatchet Mountains have a Class A (high) scenic quality rating. The landform of the Big Hatchet Mountains is characterized by massive, irregularly folded and striated mountains. Colors are pale pinks on peaks or other high elevations where bare stone shows through. In the lower elevations, colors are reddish brown or gray. Texture is grainy with some striations. Vegetation is alternately banded with rock at high elevations and more diffuse toward the bottom. Vegetation colors are the dark green of evergreen trees and shrubs, with yellow-tan grasses at lower elevations.

Portions of the Big Hatchet Mountains WSA are in three Visual Resource Management (VRM) classes as follows: Class II--49,929 acres, Class III--5,310 acres, Class IV--13,383 acres.

G. Cultural

There are several small prehistoric sites that have been reported in this area; however, they have not been recorded or evaluated as to their significance. Although there have been no systematic surveys to locate cultural resources, based on topography and water sources, the Big Hatchet Mountains WSA has a low potential for cultural resources.

H. Air

Generally, the quality of air within the Big Hatchet Mountains WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

Emissions from the Phelps-Dodge Copper Smelter, located approximately 3 miles west of the WSA boundary in the Playas Valley, could slightly lower the air quality of the area if weather conditions are such that lower quality air is trapped by an inversion layer which eventually drifts over the WSA. The only other major degradation of air quality occurs during the spring months (March-May), when west-prevailing winds (commonly gusting in excess of 30 mph) result in dust storms throughout the southern part of the State.

BIG HATCHET MOUNTAINS



Big Hatchet Mountains WSA.

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

The mineral resources potential of the Big Hatchet Mountains WSA is shown on Map 30-2. Map 30-3 shows the approximate locations of mining claims and mineral leases within the WSA.

1. Energy Minerals (Oil and Gas)

As of April 15, 1986, there were 4 oil and gas leases within the WSA boundary, all of which are post-Federal Land Policy and Management Act (FLPMA). A protective stipulation is presently attached to all oil and gas leases to protect the desert bighorn sheep and its habitat in the Big Hatchet Mountains. The protective stipulation states in part that "The lessee is given notice that all or part of the lease area contains special values . . . or requires special attention to prevent damage to surface resources. Any surface use or occupancy within such areas is strictly prohibited unless the lessee/operator demonstrates that the area is essential to adequately explore for or develop oil or gas, the lessee/operator submits a surface use and operations plan, and the surface management agency finds the proposed surface occupancy or use does not compromise the decision upon which the restriction is based or adversely affect the resources protected by the restriction." (Las Cruces/Lordsburg Management Framework Plan Amendment, BLM 1984). Approximately 50,000 acres in the main part of the Big Hatchet Mountain range, on and around U-Bar Ridge, and in the Cairn Hills (which are southeast of the WSA) are within the desert bighorn sheep habitat area. Approximately 44,670 acres of the desert bighorn sheep habitat area covered by the protective stipulation is within the boundaries of the WSA. Any seismic exploration, exploratory drilling, or actual production on leases within the desert bighorn sheep habitat area are subject to the protective stipulation. In addition, all exploration activities in the Big Hatchet Mountains are closely monitored by both the BLM and the New Mexico Department of Game and Fish (NMDGF) to protect the sheep.

There are no known occurrences of energy minerals within the Big Hatchet Mountains WSA; however, some positive indicators for the discovery of hydrocarbons in the Big Hatchet Mountains are present. These include (1) a thick sequence (15,000 feet) of Paleozoic and Cretaceous marine sediments containing numerous potential source beds and reservoir rocks, (2) favorable structural and stratigraphic traps within the Pedregosa Basin, and (3) shows of gas in the Humble "BA" well, approximately 2 miles southwest of the WSA boundary (T. 32 S., R. 16 W., Section 25) and oil and gas in the Hachita Dome well, approximately 1½ miles northeast of the WSA (T. 30 S., R. 15 W., Section 12). The Humble State "BA" well had flows of 500,000 cubic feet of gas per day prior to damage sustained during an attempt to enhance recovery by fracturing the reservoir rock and injecting it with acid (Greenwood 1970). Numerous petroleum and geophysical companies, including Placid Oil, Atlantic Richfield Company, Mav Petroleum, Gulf Oil, Exxon, Dawson Geophysical Services Inc., Grant Geophysical, Geosource Inc., Pac-West Geophysical, Arma Geophysical, Daniel Geophysical, and Tidelands Geophysical have all shown interest in the Big Hatchet Mountains.

Although the potential for the discovery of hydrocarbon resources, particularly dry gas (Thompson et al. 1978), is moderate to high within the bolson portions of the Pedregosa Basin, only the pediment portions of the WSA have moderate potential. This includes areas along the northeast pediment of the mountains closest to the Hachita Dome test well, and in the southwest part of the WSA near the U-Bar syncline. The remainder of the WSA has low potential for oil and gas because of the extensive faulting and exposure of potential reservoir rocks.

2. Nonenergy Minerals

Three unpatented mining claims, all of which were located prior to the enactment of FLPMA, are present within the WSA.

a. Base and Precious Metals (Lead, Zinc, Copper, Silver, Gold)

Several small deposits of metallic mineral resources, including lead, zinc, copper, and silver, occur in the Big Hatchet Mountains WSA. The old Lead Queen mine (T. 31 S., R. 15 W., Section 35) was operated during the 1930's and possibly into the 1940's. Total production is unknown. Lead, zinc, and silver occur at the Sheridan mine (T. 31 S., R. 15 W., Section 22), a patented property in Sheridan Canyon that was last worked in the 1930's. One carload of zinc was shipped from this mine in 1917. A small copper prospect on a ridge near Big Hatchet Peak (T. 31 S., R. 15 W., Section 5) was said to have been worked in the early 1900's, when ore was brought out by burros, but the amount of mineralization here is insignificant. The ore typically occurs in fault zones within Paleozoic sediments as small veins and stringers in all of these areas.

Rosario Exploration Company drilled on a magnetic anomaly along the eastern side of the Big Hatchet Mountains (T. 31 S., R. 14 W., Section 21) in May 1981. The hole penetrated a mafic intrusion, but no mineralization was noted. The possibility of metallic or other mineralization in this area cannot be eliminated, but is considered to be low based upon currently available information. The overall potential for metallic resources is moderate in the vicinity of the Lead Queen and Sheridan mines and low throughout the rest of the WSA.

b. Fluorspar

Information submitted by the Phelps-Dodge Corporation during the public comment period on the New Mexico Wilderness Supplemental Draft Environmental Assessment (BLM 1983) indicates potential for fluorspar mineralization in the Big Hatchet Mountains. There have been no other indications of fluorspar deposits in the WSA. Extensive fluorspar deposits elsewhere in the United States and world are adequately supplying present fluorspar needs, however, and this is expected to continue for some time to come. Also, fluorspar produced in the west is becoming less and less attractive because of high transportation costs to market areas in the midwest and along the Gulf coast (Mineral Commodity Summaries 1984). Therefore, the potential for fluorspar resources in the Big Hatchet Mountains WSA is low.

BIG HATCHET MOUNTAINS WSA (NM-030-035)

PROPOSED ACTION - AMENDED BOUNDARY ALTERNATIVE

Legend

- WSA BOUNDARY
- - - AMENDED BOUNDARY

Land Status

- BLM
- PRIVATE
- STATE
- BLM SURFACE/NON BLM SUBSURFACE

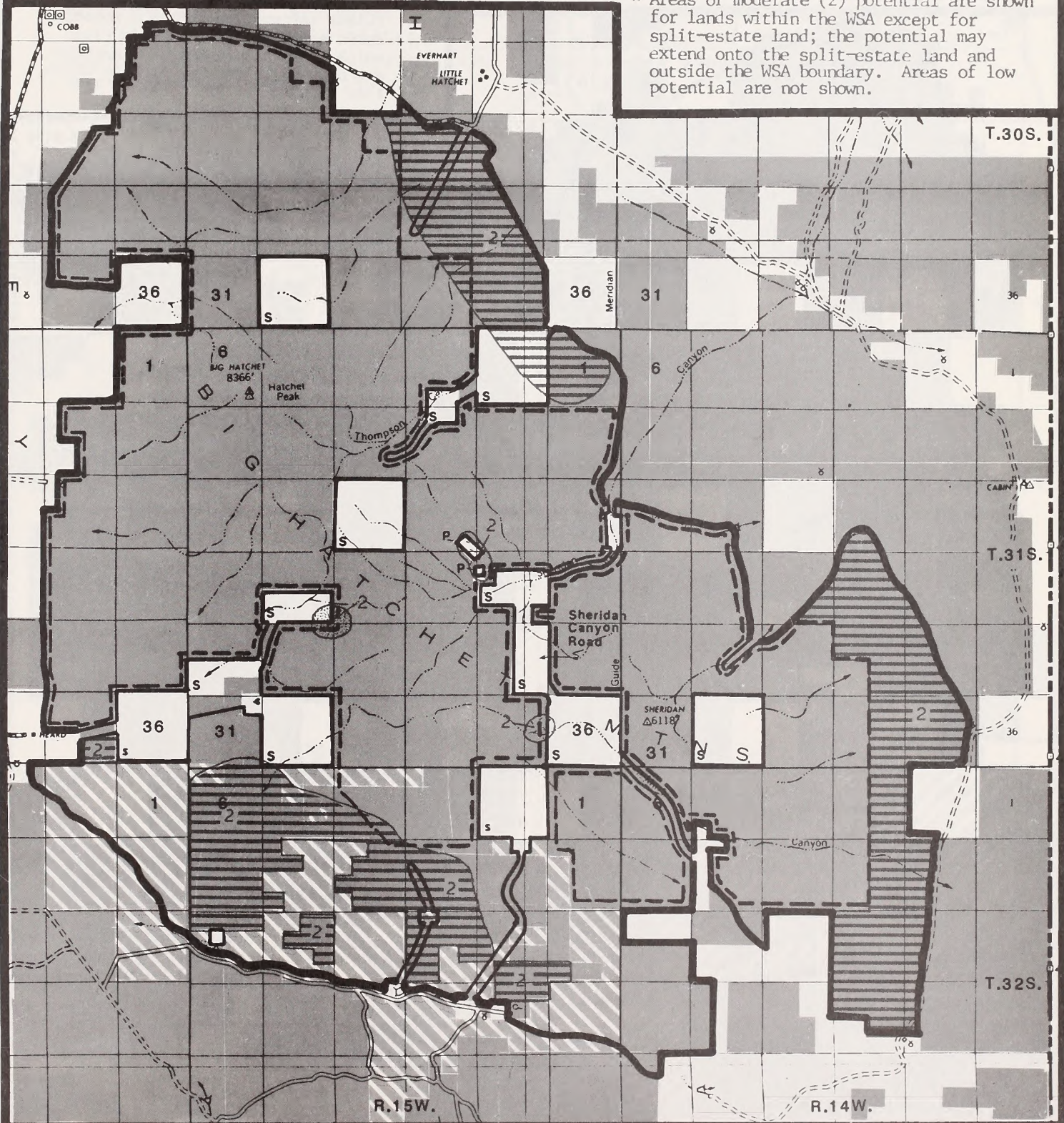
Scale: 1/2 Inch=1 mile

MAP 30-2

MINERAL RESOURCE POTENTIAL

- Petroleum, Particularly dry gas
- Base and Precious Metals
- Gypsum

* Areas of moderate (2) potential are shown for lands within the WSA except for split-estate land; the potential may extend onto the split-estate land and outside the WSA boundary. Areas of low potential are not shown.



BIG HATCHET MOUNTAINS WSA (NM-030-035)

PROPOSED ACTION - AMENDED BOUNDARY ALTERNATIVE

Legend

- WSA BOUNDARY
- - - AMENDED BOUNDARY

Land Status

- BLM
- P PRIVATE
- S STATE
- BLM SURFACE/NON BLM SUBSURFACE



Scale: 1/2 inch = 1 mile

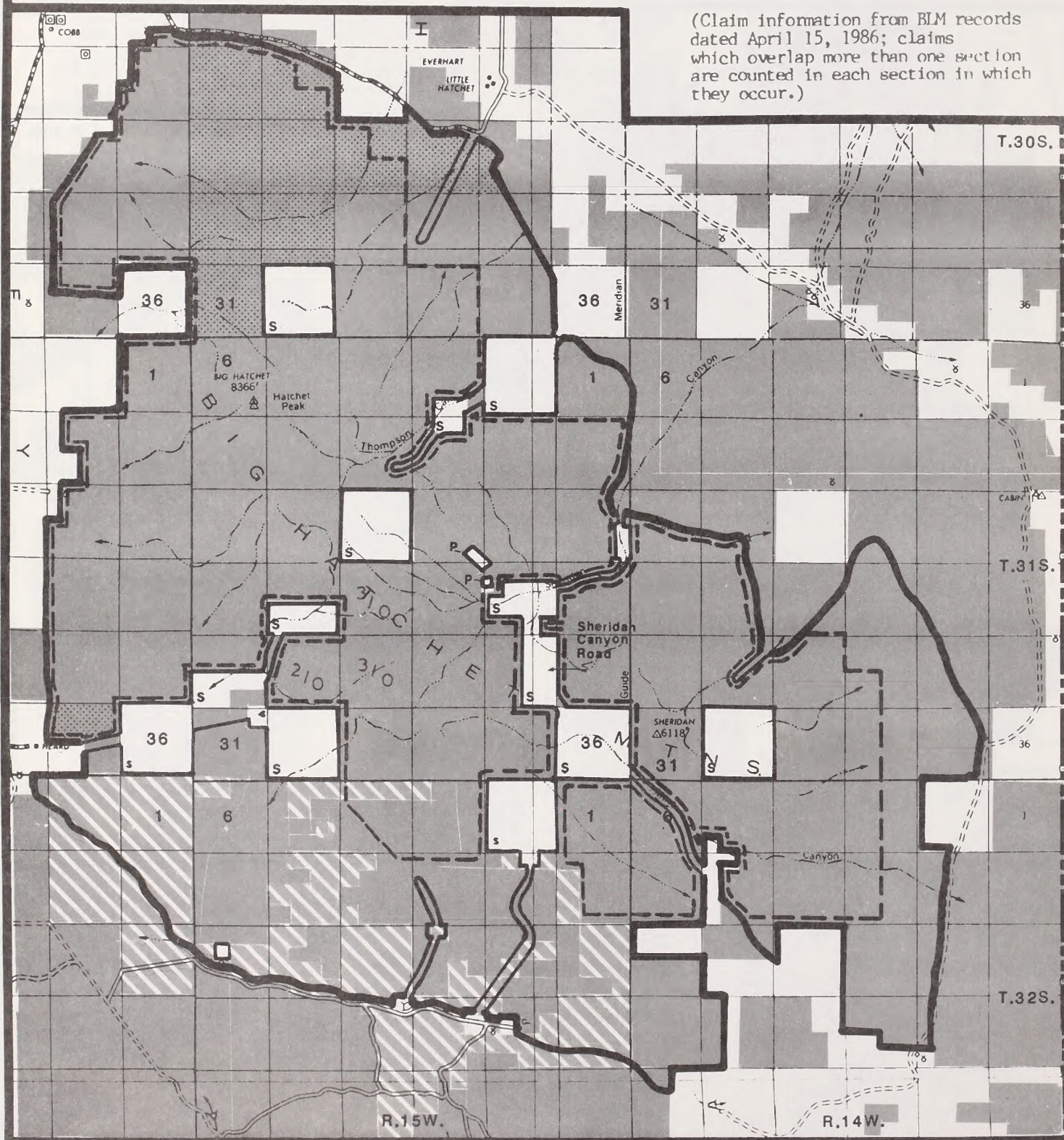
MAP 30-3

MINING CLAIMS AND MINERAL LEASES

- 2/0 Pre- FLPMA Mining Claims Per Section
- 0 Post- FLPMA Mining Claims Per Section
- Post- FLPMA Oil and Gas Lease

FLPMA was passed October 21, 1976.

(Claim information from BLM records dated April 15, 1986; claims which overlap more than one section are counted in each section in which they occur.)



c. Gypsum

Gypsum of sufficient quality for agricultural use occurs in the Big Hatchet Mountains WSA. An unknown quantity of gypsum was shipped from three unpatented mining claims in T. 31 S., R. 15 W., Sections 21, 28, and 29, during the late 1950's and early 1960's. Southeast of these claims (T. 32 S., R. 15 W., Sections 3 and 10) is another area of potentially marketable gypsum. In both areas, the gypsum occurs as bedded deposits within Paleozoic sediments. The biggest obstacle to production of this material appears to be distance to market and subsequent high transportation costs; because of this factor, the potential for gypsum in these areas is considered to be moderate.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE BIG HATCHET MOUNTAINS WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*	Approximate Acreage in Amended Boundary*
Energy Minerals				
Oil and Gas	Structural and stratigraphic traps in marine sediments of Paleozoic and Cretaceous age	Moderate Low	11,700 --	100 --
Nonenergy Minerals				
Base and Precious Metals (Lead ^a /, Zinc ^a /, Silver ^a /, Copper ^a /, Gold)	Small replacement deposits along fault zones in Paleozoic sediments	Moderate	180	180
Fluorspar ^a /	Brecciated zones in Paleozoic sediments	Low	--	--
Gypsum	Bedded deposits in Paleozoic sediments	Moderate	200	200
High-Calcium Limestone	Limestones of upper Paleozoic and lower Cretaceous age	Low	--	--

Notes: *Acreage was not calculated for areas with low potential.

^a/Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

BIG HATCHET MOUNTAINS

d. High-Calcium Limestone

According to Kottlowski (1962), high-calcium limestone occurs throughout the Big Hatchet Mountains in deposits of upper Paleozoic and early Cretaceous age. The potential for marketable resources within the WSA is low due to the untested quality of the material, abundance of similar material in southern New Mexico, and lack of readily available transportation to market.

B. Watershed

Water use within the Big Hatchet Mountains WSA is primarily by livestock and wildlife. There are nine wildlife water developments inside the WSA designed to catch and store relatively small amounts of precipitation (see Chapter III, Wildlife). Also within the WSA, there are five dirt tanks that provide seasonal water use, a storage tank, and a drinking trough (see Chapter III, Livestock Grazing). Several well facilities and dirt tanks for livestock watering and limited domestic use are located just outside the WSA boundary.

A portion of the western boundary of the Big Hatchet Mountains WSA is within the Playas Valley declared underground water basin and ground water use is administered by the New Mexico State Engineer.

C. Livestock Grazing

1. Allotments

Parts of three grazing allotments are present within the Big Hatchet Mountains WSA. Most of the Big Hatchet Mountain range is not grazed by livestock due to steep slopes. Licensed grazing use on public land includes cattle and a few horses. U-Bar (2022) and the Heard Ranch (2024) are part of the Pacific Western/Phelps-Dodge Corporation. The Hatchet Ranch (2027) is under an implemented Allotment Management Plan (AMP).

TABLE 4
ALLOTMENTS WITHIN THE WSAa/

Allotment Name and Number	Total Acres	Total AUMs	Acres in WSA	Approximate AUMs in WSA	Percent Allotment
U-Bar 2022	39,006	7,608	12,428	2,358	31%
Heard Ranch 2024	14,826	1,356	14,382	1,315	97%
Hatchet Ranch 2027	115,729	13,944	39,062	4,601	33%
TOTAL			65,872	8,274	

2. Ranch Management

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development	Location
U-Bar 2022	interior fence	5 miles
	dirt tank	T. 32 S., R. 15 W., Sec. 22
	dirt tank	T. 32 S., R. 15 W., Sec. 23
	erosion control dikes	T. 32 S., R. 15 W., Sec. 16, 17
Heard Ranch 2024	storage tank and trough	T. 31 S., R. 15 W., Sec. 29
	corral, 2 storage tanks, 2 drinking troughs	T. 30 S., R. 15 W., Sec. 31
	concrete dam	T. 31 S., R. 15 W., Sec. 1
	interior fence	2 miles
Hatchet Ranch 2027	dirt tank	T. 31 S., R. 15 W., Sec. 12
	2 dirt tanks	T. 31 S., R. 15 W., Sec. 10
	dirt tank	T. 31 S., R. 14 W., Sec. 31
	dirt tank	T. 31 S., R. 15 W., Sec. 35
	dirt tank	T. 30 S., R. 15 W., Sec. 34
	dirt tank	T. 31 S., R. 15 W., Sec. 21
	concrete dam	T. 31 S., R. 15 W., Sec. 8
	concrete dam	T. 31 S., R. 15 W., Sec. 9
	storage tank and trough	T. 31 S., R. 15 W., Sec. 10
	interior fence	8½ miles

Boundary Fences:	Heard Ranch 2024 and U-Bar 2022	3 miles
	Hatchet Ranch 2027 and U-Bar 2022	3 miles
	Hatchet Ranch 2027 and Heard Ranch 2024	1 mile

Note: ^{a/}Information shown in tables reflects only Federal acres and animal unit months (AUMs), and rangeland developments on public land.

D. Recreation

The Big Hatchet Mountains are a State game refuge and are closed to hunting. Opportunities for recreation in the WSA are for primitive, dispersed activities and are described in Chapter IV, Primitive and Unconfined Recreation.

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E. Education/Research

The main research in this area involves the desert bighorn sheep population (see Chapter II, Wildlife). There is potential for paleoenvironmental studies in dry caves.

F. Wildlife

There are a number of wildlife waters which were constructed for desert bighorn sheep. Nine umbrella or metal apron units are within the Big Hatchet Mountains WSA. Another umbrella unit is on a State section adjacent to the WSA, but influences the bighorn sheep in the WSA since it is a source of water in a major use area.

Mineral supplement stations have been placed in the Big Hatchet Mountains. Use of these stations by the indigenous bighorn sheep has cut down on movement of the bighorn sheep to the Cairn Hills (Bavin 1982).

A Habitat Management Plan (NMDGF and BLM 1982) has been written for the Big Hatchets-Alamo Huecos complex. Planned actions include fencing some canyons to keep cattle out during the growing seasons, and prescribed or controlled burns to thin out shrub species and improve desert bighorn sheep habitat. Predators would be controlled until the bighorn sheep herd stabilizes. Mineral licks would be maintained. At the base of the mountains, vegetation manipulation may be used on some creosote areas. More new waters may be developed or old nonfunctional ones restored.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

The apparent naturalness of the Big Hatchet Mountains WSA is affected by a variety of imprints of man: rangeland developments, wildlife waters, vehicle ways and roads, and mining activity.

Rangeland developments within the WSA include dirt tanks, storage tanks and drinking troughs, and fences. The fences and the majority of the dirt tanks are in the lower elevations. The windmill in Sheridan Canyon is on private land. Nine wildlife waters are dispersed throughout the mountain range. The impacts of these developments are mitigated by the large size of the WSA, the dispersed locations of the developments, and topographic screening. These imprints have an insignificant impact on naturalness.

The road through Sheridan Canyon does not have a significant impact on naturalness. The part of the road in T. 31 S., R. 15 W., Sections 13, 24, and 23, follows a very rocky arroyo and requires a four-wheel drive vehicle. The rest of the road south of Sheridan windmill, although originally constructed and maintained, is not a well improved road.

Mining impacts in the WSA are insignificant. The patented mines in Sheridan Canyon and the Proverbial Gyp mining claims along the west slope of the mountain range are presently inactive. The visual impacts of past activity are only noticeable in the general vicinities of the mines.

The Big Hatchet Mountains WSA appears to have been affected primarily by the forces of nature. The core of the WSA, which consists of the Big Hatchet Mountain range, is especially natural. The imprints of man are substantially unnoticeable because of the large size and rugged topography of the WSA. The naturalness of the Big Hatchet Mountains WSA is of a very high quality.

b. Solitude

The Big Hatchet Mountains WSA provides outstanding opportunities for solitude. The large size of the WSA and generally well blocked-up configuration allow visitors to disperse and avoid the sights and sounds of others. The rugged topography of the Big Hatchet Mountains provides numerous secluded canyons and ridges. Many of the canyons, such as Thompson Canyon, also have quite a bit of vegetative screening. High quality outstanding opportunities for solitude are available throughout the WSA.

BIG HATCHET MOUNTAINS

c. Primitive and Unconfined Recreation

There are outstanding opportunities for primitive and unconfined recreation in the Big Hatchet Mountains WSA. The boundary roads surrounding the WSA require high clearance or four-wheel drive vehicles, so motorized recreation within the WSA is discouraged.



Overview of the Big Hatchet Mountains from Thompson Canyon.

Primitive recreation opportunities within the WSA include hiking, backpacking, horseback riding, mountain climbing, and sightseeing. The rugged terrain and large size of the WSA provide for these outstanding and challenging recreation opportunities. The outstanding solitude and remoteness of the area enhance the primitive aspects of recreational experiences in the WSA. Opportunities for sightseeing are good throughout the WSA. The lucky visitor might catch a glimpse of the desert bighorn sheep.

The Big Hatchet Mountains WSA offers outstanding opportunities for primitive and unconfined recreation in terms of both quality and diversity of available opportunities.

2. Special Features

The Big Hatchet Mountains WSA contains special ecological and scenic features. The ecological features include both vegetation and wildlife values of scientific and educational interest. The Big Hatchet Mountains provide habitat for two State-listed endangered plant species (see Chapter II, Vegetation). The Big Hatchet Mountains WSA contains special habitat features such as cliffs for nesting raptors and caves which provide shelter for a variety of wildlife. Two State endangered animal species are found in the area; the desert bighorn sheep and the Sonora mountain kingsnake. The desert bighorn sheep have received a significant amount of study by the New Mexico Department of Game and Fish (see Chapter II, Wildlife).

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the Big Hatchet Mountains WSA as being in the Mexican Highlands Shrubsteppe Province with a potential natural vegetation of oak-juniper woodland.

The general nature of the Bailey-Kuchler System fails to show the vegetation variety and diversity of the WSA. Further refinement of the system shows the following vegetation types in the WSA:

<u>Vegetation Types</u>	<u>Acres</u>
mountain mahogany oak scrub	28,752
creosote	34,024
Trans-Pecos shrub savanna	316
grama tobosa shrubsteppe	2,758
mesquite-acacia savanna	22

b. Distance From Population Centers

The Big Hatchet Mountains WSA is approximately 4 hours driving time from El Paso, Texas; 3 hours from Las Cruces, New Mexico; 6 hours from Albuquerque, New Mexico; 4 hours from Tucson, Arizona; and 6 hours from Phoenix, Arizona.

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B. Manageability

Several characteristics of the Big Hatchet Mountains WSA affect the ability of the BLM to manage the area to preserve wilderness values: pre-Federal Land Policy and Management Act (FLPMA) unpatented mining claims, patented mining claims, nonpublic inholdings, and split-estate land.

There are three pre-FLPMA unpatented mining claims in the Big Hatchet Mountains WSA. The presence of these claims potentially affects the manageability of the wilderness in that if these claims are determined to be valid, the claim owners would have the right to develop them. While development of valid mining claims must be with least possible impact on the wilderness resource, mining operations may impair wilderness values if there are no reasonable alternatives. In that case, wilderness values could be degraded after the area is designated wilderness. However, at the present time development on these claims appears unlikely due to the distance to market. The presence of the claims does not pose a major obstacle to wilderness management of the area at the present time.

Private land inholdings affecting the manageability of the WSA consist of two patented mining claims. At the present time, the mines are inactive. Granting vehicular access to these patented lands, should it be necessary in the future, would not pose major manageability problems since the parcels are less than 1 mile from the Sheridan Canyon road and the access would cross less than a $\frac{1}{2}$ mile of the WSA. At the present time, the private inholdings do not pose a significant manageability problem.

State land inholdings and cherry-stemmed State land also limit the degree of BLM control over the WSA. All of the State land is leased for oil and gas, and rangeland developments are located on some of the State land. Nonwilderness uses on the State land or the development of access could negatively impact basic wilderness values (roadlessness, size, naturalness, solitude, and primitive recreation). Such development could also impact the area's most significant supplemental value, the desert bighorn sheep. However, extensive development on the 1,920 acres of State land inholdings is improbable because most of the parcels are situated within the mountain range proper, where the terrain is rugged and steep and oil and gas potential is low. It is also unlikely that the State of New Mexico would allow development that would endanger the desert bighorn sheep.

The split-estate land in the southwest portion of the WSA near U-Bar Ridge also presents a potential manageability problem. BLM is required to provide reasonable access to private inholdings including subsurface inholdings, within wilderness areas. Any development of the subsurface estate would result in surface disturbance and would require overland access. Due to the moderate favorability for oil and gas on the split-estate land, it is projected that geophysical exploration and the drilling of test wells would occur. This level of development would make it impossible to manage the Federally-owned surface as wilderness.

BIG HATCHET MOUNTAINS

Should all or a portion of the Big Hatchet Mountains WSA be designated wilderness, certain State and private inholdings and non-Federal lands adjacent to the designated area should be acquired. The topographic integrity of the designated area would be enhanced and the potential for impacts on wilderness values as a result of incompatible uses on these lands would be eliminated. The acquisitions would enhance the manageability of the designated wilderness. Lands recommended for acquisition under the All Wilderness and Amended Boundary Alternatives are legally described below.

<u>Lands to be Acquired Under the Amended Boundary Alternative</u>			<u>Acres</u>
<u>State Land</u>			
T. 30 S., R. 15 W.,	Section 32: All		640
T. 30 S., R. 16 W.,	Section 36: All		640
T. 31 S., R. 14 W.,	Section 32: All		640
T. 31 S., R. 15 W.,	Section 2: All		640
	Section 3: SE $\frac{1}{2}$ SW $\frac{1}{2}$, SW $\frac{1}{2}$ SE $\frac{1}{2}$		80
	Section 10: NW $\frac{1}{2}$ NE $\frac{1}{2}$, NE $\frac{1}{2}$ NW $\frac{1}{2}$		80
	Section 13: E $\frac{1}{2}$ SE $\frac{1}{2}$		80
	Section 16: All		640
	Section 20: S $\frac{1}{2}$		320
	Section 23: S $\frac{1}{2}$ NE $\frac{1}{2}$, SE $\frac{1}{2}$ NW $\frac{1}{2}$, N $\frac{1}{2}$ S $\frac{1}{2}$, SW $\frac{1}{2}$ SE $\frac{1}{2}$		320
	Section 26: E $\frac{1}{2}$		320
	Section 32: All		640
	Section 36: All		640
T. 32 S., R. 14 W.,	Section 5: SW $\frac{1}{2}$ SW $\frac{1}{2}$		40
	Section 8: NE $\frac{1}{2}$ NW $\frac{1}{2}$, W $\frac{1}{2}$ W $\frac{1}{2}$		200
T. 32 S., R. 15 W.,	Section 2: All		640
TOTAL			6,560
<u>Private Land</u>			
The patented mining claims in:			
T. 31 S., R. 15 W.,	Section 15: SE $\frac{1}{2}$		
	Section 22: NE $\frac{1}{2}$		
	Section 23: SW $\frac{1}{2}$ NW $\frac{1}{2}$		
TOTAL			46
<u>Non-Federal Subsurface (Mineral) Estate</u>			
T. 32 S., R. 15 W.,	Section 3: NW $\frac{1}{2}$ NW $\frac{1}{2}$		40
	Section 4: N $\frac{1}{2}$ N $\frac{1}{2}$		160
TOTAL			200
GRAND TOTAL			6,806

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If the entire WSA is designated wilderness, the approximately 3,160 acres described below should be acquired in addition to the 6,806 acres recommended for acquisition under the Amended Boundary Alternative.

<u>Additional Lands to be Acquired Under the All Wilderness Alternative</u>		<u>Acres</u>
<u>Private Land</u>		
T. 32 S., R. 15 W.,	Section 11: NW $\frac{1}{2}$ NE $\frac{1}{2}$	40
	Section 18: SE $\frac{1}{2}$ NW $\frac{1}{2}$	40
		<u>80</u>
<u>State Land</u>		
T. 31 S., R. 15 W.,	Section 30: SW $\frac{1}{2}$, N $\frac{1}{2}$ SE $\frac{1}{2}$	240
	Section 31: NE $\frac{1}{2}$ NE $\frac{1}{2}$	<u>40</u>
TOTAL		280
<u>Non-Federal Subsurface (Mineral) Estate</u>		
T. 32 S., R. 15 W.,	Section 3: NW $\frac{1}{2}$ NW $\frac{1}{2}$	40
	Section 4: N $\frac{1}{2}$ N $\frac{1}{2}$	160
	Section 5: N $\frac{1}{2}$ NE $\frac{1}{2}$, E $\frac{1}{2}$ NW $\frac{1}{2}$, NW $\frac{1}{2}$ SE $\frac{1}{2}$	200
	Section 6: N $\frac{1}{2}$ NW $\frac{1}{2}$	80
	Section 8: NE $\frac{1}{2}$, NE $\frac{1}{2}$ NW $\frac{1}{2}$, N $\frac{1}{2}$ SW $\frac{1}{2}$, SE $\frac{1}{2}$ SW $\frac{1}{2}$, SE $\frac{1}{2}$	480
	Section 9: N $\frac{1}{2}$ NW $\frac{1}{2}$, SW $\frac{1}{2}$ NW $\frac{1}{2}$	120
	Section 11: NE $\frac{1}{2}$ NE $\frac{1}{2}$, NE $\frac{1}{2}$ NW $\frac{1}{2}$	80
	Section 12: SW $\frac{1}{2}$ NW $\frac{1}{2}$, W $\frac{1}{2}$ SW $\frac{1}{2}$	120
	Section 13: NE $\frac{1}{2}$, E $\frac{1}{2}$ NW $\frac{1}{2}$	240
	Section 14: S $\frac{1}{2}$ NE $\frac{1}{2}$	80
	Section 15: NE $\frac{1}{2}$ NW $\frac{1}{2}$	40
	Section 16: N $\frac{1}{2}$ N $\frac{1}{2}$	160
	Section 17: N $\frac{1}{2}$ NW $\frac{1}{2}$	80
	Section 1: All	640
T. 32 S., R. 16 W.,	Section 12: E $\frac{1}{2}$	<u>320</u>
TOTAL		2,840
GRAND TOTAL		3,160

The Big Hatchet Mountains WSA, with the exception of the split-estate land, could be managed to preserve wilderness values in the long-term.

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 65,872 acres of public land within the Big Hatchet Mountains WSA would be recommended suitable for wilderness designation. (See Map 30-1 for the WSA boundary.)

If designated wilderness, the existing uses and activities in the area and potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the BLM's Wilderness Management Policy (WMP) (BLM 1981). Certain management actions would occur under this alternative and are summarized in Chapter I, Proposed Action, Alternatives, and Issues.

1. Impacts on Wilderness Values

Wilderness designation would provide the wilderness values present in the area with long-term Congressional protection.

The natural character of this rugged mountain would be maintained. Solitude opportunities provided by the ruggedness of the mountain and canyons as well as the presence of pinyon and juniper stands would also be preserved. The naturalness and outstanding opportunities for solitude would be enhanced in the long-term by the closure of 8 miles of ways and by limitations on livestock operators' use of motorized equipment in the WSA. Periodic vehicle use on cherry-stemmed roads and the road through Sheridan Canyon would impact solitude locally.

Since the WSA would be closed to oil and gas exploration, the associated road and drill pad construction and increased vehicle use would be precluded. This action would protect naturalness and opportunities for solitude in the northeast, southeast, and southwest portions of the WSA which contain moderate potential for oil and gas.

Limitations on access, oil and gas exploration and other surface disturbing activities would provide increased protection for the desert bighorn sheep herd, estimated to be 85 animals at present. Approximately 89 percent of the 50,000 acre designated bighorn sheep habitat in the Big Hatchet Mountains would be legislatively protected under this alternative. Desert bighorn sheep are a State-listed endangered species.

Problems could occur in the area around U-Bar Ridge. The combination of a cherry-stemmed road, State land, and split-estate lands in an area of moderate oil and gas potential increases the possibility of exploration drilling. It is projected that geophysical exploration and the drilling of up to 2 test wells would occur on the split-estate land. The surface disturbance of 15 acres and development of 5 miles of new access roads associated with drilling would result in significant degradation of naturalness and solitude in this part of the WSA. This action would occur with or without wilderness designation, and would eliminate naturalness on 3-5 percent of total WSA.

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Conclusion. Under the All Wilderness Alternative, naturalness and opportunities for solitude would be maintained on 95 percent of the acreage. Development of private minerals would degrade these values in the remaining 5 percent of the WSA. Naturalness and solitude opportunities would be enhanced in 10 percent of the WSA as a result of closing 8 miles of existing vehicle ways. Approximately 89 percent of the 50,000 acre desert bighorn sheep habitat would be maintained in a natural condition.

2. Impacts on Exploration and Development of Oil and Gas

Designation of the Big Hatchet Mountains WSA as wilderness would permanently withdraw 60,019 acres of Federal mineral estate from appropriation under the mining laws and from leasing under the mineral leasing laws. Despite moderate oil and gas potential on 11,700 acres in the pediment areas surrounding the Big Hatchet Mountains WSA, there has been no exploration drilling on existing leases within the WSA and no production. Leaseholders of four post-FLPMA leases, covering 6,240 acres, could be impacted in the short-term (the life of the lease) since any exploration or development work that would impair wilderness values would not be allowed.

After wilderness designation, existing oil and gas leases would not be reissued if unexplored through drilling upon their expiration date. No new leases would be let after wilderness designation. On the other hand, if oil and gas drilling is initiated and in progress on the anniversary date of a lease, a 2 year lease extension would be granted. Should any wells go into production prior to the lease expiration date, they would be allowed to continue production until reserves are exhausted.

If a discovery were made in an area adjacent to the WSA, energy minerals would be impacted in the long-term because there would no longer be an opportunity to fully evaluate the oil and gas potential in the WSA. In the long-term, the impacts to energy minerals would consist of the foregone opportunities to explore an area of 11,700 acres with moderate potential for oil and gas accumulations and to fully evaluate the potential of the entire WSA. Exploration could occur within the WSA on 5,853 acres of non-Federal mineral estate including 4,100 acres with moderate potential for oil and gas. Exploration activities would be regulated to cause the least impact to wilderness values.

Although there are currently only three existing mining claims, small areas of the Big Hatchet Mountains WSA have moderate potential for base and precious metals (180 acres) and gypsum (200 acres). After wilderness designation, the location of new mining claims would not be allowed. However, development work, extraction, and patenting of mining claims existing in the Big Hatchet Mountains WSA as of the date of designation would be allowed if the claims are determined to be valid. It is projected that none of the existing claims would prove to be valid.

Conclusion. Exploration including the drilling of up to 3 test wells would be foregone on 11,700 acres with moderate potential for oil and gas. Full determination of resource values would be precluded. This could result in an unquantified loss of oil and gas resources. Based on present knowledge of the oil and gas potential of the area, actual production is not projected.

3. Impacts on Desert Bighorn Sheep

The desert bighorn sheep would be managed under the Big Hatchets-Alamo Huecos HMP. Permits for helicopter and, in Romney Canyon, vehicular access to maintain existing wildlife waters and mineral licks could be authorized if there were no practical alternatives. The WMP specifically states that development of water sources and controlled burns are acceptable if they would promote perpetuation of a threatened or endangered species. Protecting the habitat and allowing the 2,500 acres of controlled burns and water catchments would insure that the sheep had the greatest opportunity to reach the historic herd size of 125 to 150 animals.

The restrictions of wilderness management on surface disturbing and mechanized activities would provide long-term protection for the desert bighorn sheep population and habitat. Wilderness designation would provide added protection for the wildlife and habitat on approximately 13,000 acres along the periphery of the WSA not presently covered by the protective leasing stipulation for desert bighorn sheep.

Conclusion. Wilderness designation of the Big Hatchet Mountains WSA would provide additional protection for desert bighorn sheep and sheep habitat. This action could result in a 30-40 percent increase in animal numbers, allowing the herd to reach the historic herd size of 125 to 150 animals.

4. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 7 head per section per year (8,274 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include approximately 23 miles of fence, 9 dirt tanks, and 4 storage tanks and drinking troughs. New rangeland facilities are not planned. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy, with permits required when motorized vehicles or equipment are used. Minor repairs to the fences would have to be accomplished on horseback.

Restriction of vehicular use, less than 100 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. Amended Boundary (Proposed Action)

Under the Amended Boundary Alternative, 45,374 acres of public land within the Big Hatchet Mountains WSA would be recommended suitable for wilderness designation. (See Map 30-1 for the amended WSA boundary.) The amended boundary would exclude 20,498 acres of public land surrounding the Big Hatchet Mountain range. The excluded area includes 11,600 acres of

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Federal mineral estate with moderate potential for oil and gas. The excluded area also contains 5,653 acres of subsurface mineral estate. The Amended Boundary would eliminate potential resource conflicts and eliminate potential manageability conflicts with the split-estate land.

The excluded area would be managed according to the Las Cruces/Lordsburg Management Framework Plan (MFP) Amendment. This plan prescribes livestock grazing and oil and gas leasing for the area. Livestock grazing would continue at present levels of approximately 7 head per section per year (8,274 AUMs). No additional rangeland developments are proposed. The area would be opened to oil and gas leasing with a protective stipulation to protect desert bighorn sheep habitat on approximately 7,000 acres. The stipulation states that "The lessee is given notice that all or part of the lease area contains special values, is needed for special purposes or requires special attention to prevent damage to surface resources. Any surface use or occupancy within such areas is strictly prohibited unless the lessee/operator demonstrates that the area is essential to adequately explore for or develop oil or gas, the lessee/operator submits a surface use and operations plan, and the surface management agency finds the proposed surface occupancy or use does not compromise the decision upon which the restriction is based or adversely affect the resources protected by the restriction" (Las Cruces/Lordsburg Management Framework Plan, BLM 1984).

The excluded area is also covered by the Big Hatchets-Alamo Hueco HMP which prescribes management of the area to generally benefit desert bighorn sheep. No specific actions or projects are proposed for bighorn sheep in the excluded area.

If the area within the amended boundary is designated wilderness, existing and potential uses (see Chapter III) would be regulated by the WMP (BLM 1981).

In 45,374 acres designated as wilderness, closure to vehicle use will result and opportunities for exploration and development of minerals would be foregone. Short-term consumptive uses would not degrade the maintenance and enhancement of the long-term productivity. Although designation of wilderness constitutes a long-term commitment of resources, such designation is reversible by Congress.

In the 20,498 acres not designated as wilderness, unavoidable adverse effects of the proposed action will result from future surface disturbance activities. Over the long-term, these activities will reduce the quality of wilderness values by adversely affecting naturalness, opportunities for solitude and primitive recreation and special wilderness features. Also, cumulative short-term consumptive uses of this land will lead to long-term degradation of wilderness values. Nondesignation of 20,498 acres as wilderness would leave this acreage available for development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

The entire area within the amended boundary would be managed to retain its wilderness character. High quality natural values of the

pinyon and juniper covered mountain core would be maintained as would the outstanding opportunities for solitude provided by the secluded canyons and ridges of the mountain range. Outstanding opportunities for hiking, backpacking, horseback riding, mountain climbing, and sightseeing would be maintained. Approximately 37,993 acres of desert bighorn sheep habitat (76 percent of the total 50,000 acres designated habitat in the Big Hatchet Mountains) would be legislatively protected under this alternative. The desert bighorn sheep are an important special feature of the area.

Existing naturalness and opportunities for solitude on the 20,498 acres not designated as wilderness would be impacted by road and drill pad construction and increased vehicle use from projected oil and gas exploration. It is expected that geophysical exploration would occur and would result in up to 5 exploratory wells being drilled on areas of moderate potential for oil and gas. Up to 11 miles of new access would be required in support of exploration activities. This exploration and development activity would result in the loss of the natural character and solitude opportunities on the nondesignated portion of the WSA.

Conclusion. Under the Amended Boundary Alternative, approximately 65 percent of the WSA's natural character would be maintained in a natural condition. Naturalness and opportunities for solitude would be lost or diminished on the remaining 35 percent of the WSA not designated wilderness, as a result of future oil and gas exploration and development.

2. Impacts on Exploration and Development of Oil and Gas

After wilderness designation, no new oil and gas leasing would be allowed on the 45,374 acres of public land within the amended boundary. This includes only 100 acres of moderate potential for oil and gas. The remaining 45,274 acres of the WSA recommended suitable for wilderness has low or no potential for oil and gas; therefore, there would be no impact on oil and gas exploration and development as a result of wilderness designation.

The 20,498 acres excluded from the designated area would be available for leasing, exploration drilling, and possible development. This acreage is located in the pediment areas of the Big Hatchet Mountains and around U-Bar Ridge and includes approximately 98 percent of the acreage identified as having moderate potential for oil and gas. It is expected that geophysical exploration would occur and would result in up to 5 exploratory wells being drilled in areas of moderate potential. Based on the oil and gas potential, the lack of producing wells in the general area, and the low number of potential exploratory drill holes in the WSA, no production is anticipated or projected to occur. Therefore, no impact on oil and gas exploration and development is projected. Approximately 7,000 acres of the 20,498-acre area available for leasing would be leased with the protective stipulation for desert bighorn sheep. Directional drilling could be required for exploration or development of leases on this 7,000 acres if it were determined that surface use or occupancy would adversely affect the desert bighorn sheep.

The Amended Boundary Alternative would have a lower degree of conflict with energy mineral resources than the All Wilderness Alternative. The impacts to energy minerals would consist of the foregone opportunities

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to explore an area of approximately 100 acres with moderate oil and gas potential.

Under this alternative, the impacts to locatable minerals would be the same as those described under the All Wilderness Alternative.

Conclusion. The opportunity for oil and gas exploration would be foregone on approximately 100 acres with moderate potential. A total of 20,498 acres would be open to oil and gas leasing with active exploration anticipated to occur on 11,600 acres of Federal mineral estate with moderate potential.

3. Impacts on Desert Bighorn Sheep

Under the Amended Boundary Alternative, the desert bighorn sheep would be managed according to the Big Hatchets - Alamo Huecos HMP. Permits for helicopter and, in Romney Canyon, vehicular access to maintain existing wildlife waters and mineral licks could be authorized if there were no practical alternatives. Approximately 76 percent of the desert bighorn sheep habitat would be within the designated wilderness under this alternative. Protecting bighorn sheep habitat and developing projects described in the HMP that are compatible with wilderness management would improve the habitat which would be expected to result in a 15-20 percent increase in bighorn sheep numbers.

The restrictions of wilderness management on surface disturbing and mechanized activities would provide long-term protection for the desert bighorn sheep population and their habitat within the amended boundary. Wilderness designation would provide additional protection for the wildlife and wildlife habitat on the approximately 3,300 acres within the amended boundary not covered by the protective leasing stipulation for desert bighorn sheep.

The 20,498 acres excluded from the designated area would be available for oil and gas leasing, exploration, and possible development. It is expected that geophysical exploration would result in up to 5 exploration wells being drilled and up to 11 miles of new road being developed. Actual production from the area is not projected unless new information changes the favorability rating and the oil and gas market improves. Approximately one-third or 7,000 acres of the excluded area is covered by the protective stipulation for desert bighorn sheep and sheep habitat. The stipulation states that "The lessee is given notice that all or part of the lease area contains special values, is needed for special purposes or requires special attention to prevent damage to surface resources. Any surface use or occupancy within such areas is strictly prohibited unless the lessee/operator demonstrates that the area is essential to adequately explore for or develop oil or gas, the lessee/operator submits a surface use and operations plan, and the surface management agency finds the proposed surface occupancy or use does not compromise the decision upon which the restriction is based or adversely affect the resources protected by the restriction" (Las Cruces/Lordsburg Management Framework Plan, BLM 1984). The remaining two-thirds of the 20,498 acres excluded from wilderness designation is not considered optimum habitat for bighorn sheep and is not part of the designated habitat area. However, approximately 10,000 acres lies on the southern slopes of the Big

Hatchet Mountains. Oil and gas exploration and development in the area would interfere with movement of sheep between the Big Hatchet herd and the recently established herd in the Alamo Hueco Mountains to the south. This could have a detrimental effect on the sheep in the two mountain ranges by disrupting free movement between the two herds and effectively isolating them.

Conclusion. Wilderness designation of the Big Hatchet Mountains WSA under the Amended Boundary Alternative would provide additional protection for desert bighorn sheep and sheep habitat. Installation of habitat improvement projects would result in a 15 to 20 percent increase in animal numbers. However, isolating the two herds in the Big Hatchet Mountains and the Alamo Hueco Mountains would tend to reduce this potential increase by about $\frac{1}{2}$ and maintain the herd at approximately 100 animals.

4. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 7 head per section per year (8,274 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include approximately 23 miles of fence, 9 dirt tanks, and 4 storage tanks and drinking troughs. New rangeland facilities are not planned. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy, with permits required when motorized vehicles or equipment are used. Minor repairs to the fences would have to be accomplished on horseback.

Restriction of vehicular use, less than 100 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access. Approximately $6\frac{1}{2}$ miles of vehicle ways would be closed to motorized use (compared to 8 miles under the All Wilderness Alternative) and most of the U-Bar allotment (2022) would be outside of the amended boundary.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

C. No Wilderness

Under the No Wilderness Alternative, the entire 65,872 acres of public land in the Big Hatchet Mountains WSA would be recommended nonsuitable for wilderness designation.

If the WSA is not designated wilderness, it would be managed according to the Las Cruces/Lordsburg MFP Amendment (BLM 1984). This plan prescribes livestock grazing and energy mineral leasing as primary uses of the area. In addition, wildlife habitat in the WSA would be managed as prescribed by the Big Hatchet-Alamo Hueco HMP which was approved by BLM and New Mexico Department of Game and Fish in 1983.

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According to the MFP Amendment, the entire area would be open to oil and gas leasing. Approximately 44,000 acres of the area would be leased with a stipulation to protect desert bighorn sheep and their habitat. The lease prohibits any surface use or occupancy within the protected area unless the operator shows that the area is essential for operations, the operator submits an operations plan, and the BLM determines that the proposal does not adversely affect the bighorn sheep or their habitat.

It is expected that exploration for oil and gas would likely occur on 11,700 acres of Federal mineral estate with moderate potential. Oil and gas exploration is also anticipated on approximately 4,100 acres of non-Federal mineral estate with moderate potential. Upgrading of 8 miles of existing vehicular ways, the construction of an additional 5-10 miles of access routes, seismic exploration, and the drilling of up to 5 exploratory wells are anticipated. Actual production of oil and gas is not expected to occur in the WSA, however, due to the lack of producing wells in the area, and the low number of exploratory drill holes projected.

Although increased access would result from mineral exploration, a significant increase in recreational ORV use is not expected due to the remoteness of the WSA.

The WSA has moderate potential for base and precious metals (180 acres) and gypsum (200 acres), however surface disturbing exploration is not expected due to the small acreages involved.

Under the Big Hatchets-Alamo Hueco HMP, wildlife habitat in the Big Hatchet Mountains would be managed to benefit desert bighorn sheep. Specific actions prescribed to protect desert bighorn and improve habitat include predator control, construction of artificial waters, maintenance of artificial mineral licks, and controlled burns of up to 2,500 acres to improve the composition of the natural vegetation.

1. Impacts on Wilderness Values

Oil and gas exploration drilling in areas of moderate potential would degrade natural values and opportunities for solitude in 30 percent of the WSA. Opportunities for primitive recreation would be reduced as well by the deterioration of natural values and the increased presence of man. Oil and gas exploration would likely be confined to the lower slopes and foothills of the Big Hatchet Mountains since this is the area of moderate potential and is also most accessible. It is not expected that oil and gas exploration would occur on the higher steeper slopes of the mountain range. Surface disturbing exploration for base and precious metals is not expected because of the small acreages of moderate potential. Since it is not likely there would be surface disturbing exploration in the higher elevations, approximately 70 percent of the WSA would retain its existing natural character, opportunities for solitude, and opportunities for primitive and unconfined recreation.

Conclusion. The No Wilderness Alternative would result in the loss or destruction of wilderness values over 30 percent of the WSA in the long-term. Existing naturalness and opportunities for solitude and primitive recreation would be retained on 70 percent of the area.

2. Impacts on Exploration and Development of Oil and Gas

Under this alternative, 60,019 acres of Federal mineral estate within the WSA would be open to leasing. However, approximately 68 percent of the area is designated desert bighorn sheep habitat and would be leased with a protective stipulation prohibiting surface use or occupancy unless it is determined that such use or occupancy does not adversely affect the desert bighorn sheep. The area included in the designated habitat generally excludes more of the mountain pediments than the amended boundary, especially along the northeast and west-central slopes of the mountain range. Surface use or occupancy would not be allowed in the designated habitat area if it would have adverse effects on the desert bighorn sheep. Approximately 75 percent of the 11,700 acres on which oil and gas exploration is anticipated to occur is not covered by the protective stipulation. Exploration could occur on these areas without any special restrictions.

Compliance with the protective stipulation could require exploration techniques such as directional drilling which would result in increased operation costs. Although the No Wilderness Alternative would have a lower degree of conflict with energy minerals than the All Wilderness or Amended Boundary Alternatives, the restrictions of the leasing stipulation could impact energy mineral resources. It is expected that up to 2 exploratory drill holes and 1 mile of road would be impacted by the leasing stipulation.

Exploration and development of locatable minerals would not be restricted under this alternative. However, only limited amounts of exploration involving little or no surface disturbance is expected, and no development is projected due to the limited potential for mineral occurrence. Mining activities would be regulated to prevent unnecessary and undue degradation under the Surface Management Regulations (43 CFR 3809).

Conclusion. Under this alternative, there would be some restrictions on oil and gas exploration to protect desert bighorn sheep, however, those impacts would not preclude exploration and possible development of the oil and gas in the WSA.

3. Impacts on Desert Bighorn Sheep

Under the No Wilderness Alternative, the desert bighorn sheep in the Big Hatchet Mountains would not be provided with the additional protection of wilderness designation. However, approximately 44,760 acres of the desert bighorn sheep habitat area covered by the protective stipulation on oil and gas leasing is within the boundaries of the WSA. This stipulation would limit surface disturbing activities caused by oil and gas exploration. Such activities would be prohibited if it was determined that they caused the sheep to abandon all or a part of their habitat either seasonally or permanently. However, the stipulation is an administrative decision in the Las Cruces/Lordsburg MFP Amendment (BLM 1984). As such, it is subject to change and would not provide complete, long-term protection for bighorn sheep and bighorn sheep habitat. As such, it is subject to change and would not provide complete, long-term protection for bighorn sheep and sheep habitat in the Big Hatchet Mountains. It is projected that in the long-term, up to five exploratory wells would be drilled in the area

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showing moderate potential for oil and gas. Seismic exploration and drilling would result in upgrading 8 miles of existing vehicle ways and constructing up to 10 miles of new roads. These activities would negatively impact sheep and habitat, particularly in the south end of the Big Hatchet Mountains. Development in the south end would tend to keep the sheep confined to the northern and central portion of the Big Hatchet Mountains and would interfere with movement of sheep between the Big Hatchet herd and the recently established herd in the Alamo Hueco Mountains. Such movement is presently occurring and is contributing to the steady increase of bighorn sheep in the area. Disrupting this movement would have a detrimental effect on the sheep by isolating the two herds, preventing interbreeding among a larger number of individuals and precluding use of all available habitat. As a result of development, total bighorn sheep numbers would likely decline 10-20 percent from existing levels.

The WSA contains only 200 to 400 acres of other types of mineral resource potential. It is expected that exploration activities and related surface disturbance would be confined to these tracts. Desert bighorn sheep would avoid these areas of impact. Such avoidance could cause the sheep to make less use of the habitat in the southern half of the WSA. However, it is not expected that the sheep would abandon the mountain range entirely. The bighorn sheep tend to spend much of their time around Big Hatchet and the associated high elevation country in the north half of the WSA. This area would not be impacted or affected by mineral exploration or development on the three isolated tracts.

The 2,500 acres of controlled burn and water catchments to benefit desert bighorn sheep would be approved without restrictions to protect wilderness values. However, any improvements in habitat would be offset by oil and gas exploration and development.

Conclusion. As a result of oil and gas exploration and development and possible exploration for base and precious metals, bighorn sheep would change their habitat use patterns. Sheep population levels could be reduced by up to 20 percent below those existing before exploration and development begins.

4. Impacts on Livestock Grazing Use Levels

Current livestock grazing use levels of approximately 7 head per section per year (8,274 AUMs) would continue. All rangeland developments could be checked and maintained on a convenience basis using motorized equipment. Grazing permittees would be allowed to use vehicles on existing trails to check livestock.

Conclusion. There would be no impacts on livestock grazing.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

Personal letters, form letters, and petitions were received on the Big Hatchet Mountains WSA during the public comment periods on the New Mexico Wilderness Review Initial Inventory Decisions (BLM 1979) and the New Mexico Wilderness Study Area Proposals (BLM 1980). The Big Hatchet Mountains WSA proposal was among the ten most commented on recommendations in the State. Photographs, road affidavits, maps, and a list of mining claims were included with the comments.

Approximately 58 percent of the personal letters supported wilderness review of the Big Hatchet Mountains. The supporting comments concentrated on outstanding opportunities for solitude and primitive recreation and the supplemental geological, scenic, and wildlife values of the area.

Approximately 42 percent of the personal letters opposed wilderness review of the area. Opposing comments stated that the area should be dropped from further consideration for the following reasons: oil and gas potential, hardrock minerals, nonpublic land inholdings, dull topography, undesirable vegetation, low potential for rehabilitation, and lack of basic wilderness criteria. One comment noted that due to the wildlife management problems of the desert bighorn sheep, they could hardly be considered a supplemental value.

During the public comment period on the New Mexico Wilderness Supplemental Draft Environmental Assessment (BLM 1983), 33 personal inputs, 13 form letters, 1 petition with 15 signatures, and 52 coupons were received indicating support for wilderness designation of the Big Hatchet Mountains WSA. The form letters, petition, and coupons listed no supporting reasons. The coupons indicated support for designation of 41,293 acres as described in the Amended Boundary Alternative. Four personal inputs opposing wilderness designation were submitted.

Several of the comments favoring wilderness designation reiterated supporting reasons mentioned in previous public review periods such as primitive recreation opportunities, scenic values, and desert bighorn sheep habitat. Other comments included: the area is a major landmark of National significance, natural, and the area has important archaeological sites from the Meso-American culture.

Several respondents supported the Amended Boundary Alternative because it leaves the core of the mountain range intact and is a good compromise. Other comments indicated support for wilderness designation of an area other than the 58,014-acre WSA. The acreage figures ranged from 58,000 to 65,872 acres. There were no maps or discussions of alternative boundaries included with these comments. Several respondents felt that the area designated should be larger than the amended boundary to provide a protective buffer zone around the wilderness. Several comments also indicated disagreement with the deletion of split-estate lands from the WSA.

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A number of comments asserted that the Big Hatchet Mountains WSA should be designated wilderness because the area would provide primitive recreation opportunities for the growing population centers of the Southwest. Other commentators felt the area would be a valuable addition to the National Wilderness Preservation System in terms of ecosystem diversity.

Comments on the potential wilderness manageability of the Big Hatchet Mountains WSA included: discourage vehicular use of the Sheridan Canyon road, acquire or discourage development of oil and gas leases, and acquire State and private inholdings. Another comment regarding potential resource conflicts expressed the opinion that "unique and irreplaceable" areas should be protected rather than allowing oil and gas development.

Several comments made in the four personal inputs opposing wilderness designation stated that the scenery and solitude of the Big Hatchet Mountains could be protected under present BLM programs and the values protected by wilderness designation could be protected through less restrictive management. Four comments cited the area's mineral potential as a reason for opposing wilderness designation.

Other comments included: the withdrawal of 58,014 acres would extremely limit evaluation of the most prospective part of the Pedregosa Basin and closing ranch roads and jeep trails would have a negative impact on geologic field research and mineral exploration and development.

The Phelps-Dodge Corporation submitted a voluminous document including photographs and maps. Many of the comments in the document submitted by Phelps-Dodge addressed what they considered deficiencies in the New Mexico Wilderness Supplemental Draft Environmental Assessment (BLM 1983). Only those substantive comments addressing the Big Hatchet Mountains Wilderness Analysis Report (WAR) are summarized here.

Phelps-Dodge disagreed with the discussion of impacts to wilderness values if the area were left open for mineral activities as described under the No Action/No Wilderness Alternative. The Phelps-Dodge comments stated that the discussion failed to acknowledge that "only a small fraction of these areas would even be touched by any mineral activity," and "most areas which are affected are touched only by exploration activities which are easily rehabilitated." In addition, Phelps-Dodge's comments asserted that the document should at least recognize that the extent of disturbance caused by both hardrock and leasable mineral activities can be closely controlled by the BLM regulations applying to those activities.

Phelps-Dodge further asserted that the WAR failed to establish that the Big Hatchet Mountains WSA satisfies the statutory wilderness criteria and the WSA should not be recommended for wilderness designation. Reasons for their position included: the area has roads, wilderness values are impaired by inholdings, and the area's naturalness is impaired by man-made intrusions. The effects of the Sheridan Canyon road on the area's boundaries have been clarified in Chapter I, Land Status. Phelps-Dodge's comments also expressed the opinion that the WAR reflected an inadequate analysis of the Big Hatchet Mountains mineral values. Information regarding fluorite mineralization in the area has been incorporated into this report.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Big Hatchet Mountains WSA and recommended wilderness designation for the entire WSA plus additional acreage around the periphery. Specific comments were directed to the Big Hatchet Mountains WSA by 111 commentators with 106 supporting wilderness designation and 5 opposing it. One commentators felt that the analysis of the WSA was inadequate because it did not consider split-estate land and areas less than 5,000 acres. These areas have been added back to the WSA as a result of the Sierra Club vs. Watt decision and are analyzed in this revised WAR.

During public scoping on the split-estate issue held in early 1986, 7 commentators specifically favored the addition of split-estate to the affected WSAs and 5 commentators opposed it.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Big Hatchet Mountains WSA by 49 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100-1

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "One of the key supplemental values of the area is that it is home to several herds of the rare desert bighorn sheep . . .

In the May 1980 Draft EA on Oil and Gas Leasing in the Big Hatchet and Alamo Hueco Mountains, recommendations were made by several authorities as to the best methods for attempting to ensure survival and to increase the size of the desert bighorn sheep population. Two major points stood out in several of the letters. One is that the sheep have a great deal of difficulty adjusting to encroachment of many man-related activities . . .

The second point made was that the current area utilized by the sheep is greatly reduced from the historic range . . .

Analysis of these comments indicates that a large wilderness area would be the best method to provide for the needs of the sheep. Wilderness status, with visitor use limits, would help solve the problem of human encroachment, especially oil and gas exploration and development . . .

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No. 0100-1 (concluded)

Why is BLM reluctant to recommend a large wilderness to protect this valuable resource?"

Response: BLM acknowledges that the desert bighorn sheep herd is the most significant wildlife feature of the Big Hatchet Mountains WSA and a key supplemental value. BLM also recognizes the potential for conflicts between the survival of the sheep and the exploration and development of potential oil and gas resources. BLM's recognition of these conflicts and commitment to the herd's survival is evident upon review of past management actions affecting oil and gas leasing in the Big Hatchet and Alamo Hueco Mountain WSAs.

The Draft EA (May 1980) and Final EA (September 1980) (EA Number 30-030-80-81) were prepared in cooperation with the New Mexico Department of Game and Fish (NMDGF) with extensive public involvement. The EA acknowledged the sensitivity of the sheep to man's presence and activities, and the fact the herd was not fully utilizing historic range.

Based on existing data on sheep movements and areas of potential oil and gas resources, the decision in the Final EA was to lease part of the area with no special stipulations, lease other areas with a no surface occupancy stipulation, and continue a no leasing policy in intensive sheep use areas. The decision also specified that yearly meetings between BLM and the NMDGF would be held to evaluate the sheep population, habitat, oil and gas lease boundaries, and stipulations.

In May 1982, BLM amended the 1980 policy on oil and gas leasing in the Big Hatchet and Alamo Hueco Mountains. The entire area was opened to leasing with a special stipulation that surface use or occupancy is prohibited unless BLM finds the proposed use would not adversely affect desert bighorn sheep habitat.

As of July 1980, there were 29 desert bighorn sheep in the Big Hatchet Mountains. There are presently 80 - 100 sheep in the Big Hatchet Mountains, 30 sheep in the Little Hatchet Mountains, and 20 sheep in the Alamo Hueco Mountains. The NMDGF monitors three sheep in the Big Hatchet Mountains outfitted with radio collars on a monthly basis. The last seismic activity in the area was in 1983 outside the WSA boundary. The NMDGF is unaware of any sheep movements related to recent seismic activity (Sandoval 1987).

The existing management strategy for the desert bighorn sheep in the Big Hatchet Mountains, Little Hatchet Mountains, and Alamo Hueco Mountains appears to be successful. The fact that areas of desert bighorn sheep habitat within a designated wilderness would be afforded long-term Congressional protection is undeniable, however, BLM has the authority to administratively provide essentially the same degree of protection.

No. 0100-2

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The BLM, by recommending an amended boundary for the Big Hatchets, has at least shown that there are some high quality wilderness values to be found in this area. The recent change in extending the amended boundary back to the WSA boundary on the west side is fully supported by the Coalition. Unfortunately, the BLM recommendation still leaves out many outstanding areas."

Response: It is the BLM's position that the Amended Boundary Alternative recommends as suitable for wilderness designation that portion of the Big Hatchet Mountains WSA with the highest quality wilderness values, reduces conflicts with the exploration and development of oil and gas resources, and allows for adequate protection of the desert bighorn sheep.

The Amended Boundary Alternative would exclude from the designated wilderness approximately 98 percent of the acreage within the WSA boundary identified as having moderate potential for oil and gas. Acreage within the excluded area identified as desert bighorn sheep habitat would be protected from oil and gas activity by the protective leasing stipulation that prohibits activities adversely affecting the sheep.

Approximately 76 percent of the designated desert bighorn sheep habitat in the Big Hatchet Mountain range would be legislatively protected by wilderness designation.

No. 0100-3

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The Coalition's reinventory of boundaries for Big Hatchet Mountains WSA indicated a number of discrepancies:

(1) The northeast boundary road turns into a way after approximately four miles. (For further clarification regarding roads and ways, please see comments at the front of this document.) By cherry-stemming this portion of road, the boundary can be extended to the northeast to include a large addition of BLM and State lands which have similar wilderness characteristics to the rest of the WSA.

(2) The 'road' through Sheridan Canyon does not show any recent signs of physical construction or maintenance and also should be considered a way. This change would reconnect the southeast portion of the WSA to the rest of the area.

No. 0100-3 (concluded)

(3) There is a large block of State land on the southeast corner of the WSA that would make a significant addition to the area. The only man-made impact in this area is one stock tank and a way that is virtually impassable.

(4) Only a portion of the road that is used as the southern boundary meets the road definition, the rest should be considered a way. The part that is a road has been cherry-stemmed to the Alamo Hueco north boundary road, and all of the land between the two areas recommended for inclusion in the wilderness complex."

Response: It is the BLM's position that the routes in question meet the definition of a road set forth in the Wilderness Inventory Handbook (September 1978) at the time the inventories were done. After considering all information and public comments gathered in the initial and intensive inventories, the WSA boundaries and routes evaluated as meeting the road definition were finalized in the State Director's decision set forth in the November 1980 New Mexico Wilderness Study Area Decisions. There were no appeals filed on the decision that these routes are roads. (Note: The El Paso Wilderness Preservation Committee did protest the Sheridan Canyon Road determination but filed no appeal).

No. 0100-4

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "In the 1986 WAR, several items were listed as the justifications for the amended boundary in the Big Hatchets and the no-wilderness recommendation in the Alamo Huecos. One of the reasons common to both areas was to reduce conflicts with potential oil and gas resources . . .

With the amended boundary alternative in the Big Hatchet Mountains, 20,498 acres would be made available to oil and gas leasing. . . . If the 20,498 acres are released, only a total of five exploratory wells are predicted to be drilled ever in this area. Finally, the 1986 WAR states that under the all-wilderness option 'no impact on development (to the oil and gas industry is) anticipated . . . no production is anticipated to occur.'

Alamo Hueco Mountains WSA has an even much lower potential for oil and gas than the Big Hatchets . . . In summary, the BLM's use of oil and gas conflicts as a justification for dropping much of the Big Hatchets and all of the Alamo Huecos is not defensible."

No. 0100 (concluded)

Response: The primary reason for the amended boundary recommendation in the Big Hatchet Mountains WSA is to reduce potential conflicts with oil and gas exploration and possible development in an area of moderate potential for oil and gas resources. As stated in the WAR, based on current information, production of oil and gas from the Big Hatchet Mountains WSA is not expected; therefore, no impact on development is anticipated. However, oil and gas exploration would be expected to occur without wilderness designation. If the entire WSA was designated wilderness and a discovery was made in an area adjacent to the WSA, which is rated as having moderate potential, energy minerals would be impacted in the long-term because opportunities to fully evaluate areas of moderate oil and gas potential would be foregone.

Conflict with potential oil and gas resources is not a reason for the no wilderness recommendation for the Alamo Hueco Mountains WSA. The presence of 2,610 acres of non-Federal mineral estate could cause conflicts with wilderness management of the area, but oil and gas potential on the split-estate land is low as it is in the rest of the Alamo Hueco Mountains WSA. The primary reason for not recommending the Alamo Hueco Mountains WSA suitable for wilderness designation is the land status patterns in the area and the manageability problems associated with it. The BLM could not manage the area as wilderness without substantial acquisition of private land.

* * * * *

No. 0128-1

Name(s): William L. Allen, Pacific Western Land Company

Comment: "Although Table 1, Description of the Proposed Action and Alternatives in both WSAs (Big Hatchet Mountains and Cowboy Spring) states that current grazing levels on permitted land would continue under wilderness designation, this philosophy does not seem to be evident in other parts of the study. In Table 2, Summary of Significant Impacts for Cowboy Springs, for example, it is stated in the No Wilderness discussion that the long-term continued livestock grazing operations, including construction of additional rangeland developments and continued vehicle use, would impact the WSAs naturalness and opportunities for solitude. If this is the case, why would grazing be allowed to continue under wilderness designation? This makes suspect the statements that grazing could continue, and PWLC believed that it is possible that such would eventually be disallowed under wilderness designation."

BIG HATCHET MOUNTAINS

No. 0128-1 (concluded)

Response: While livestock grazing would continue under wilderness designation, the environmental impacts of grazing management would be much less than under nonwilderness management due to restrictions to protect wilderness values. For example, within wilderness areas, the use of motorized or mechanized equipment generally would not be allowed except in rare instances as permitted and prescribed by BLM. The construction of roads would not be permitted. The installation of rangeland developments requiring surface disturbance such as dirt tanks or pipelines would be restricted as to design, location, type of construction, and equipment used in construction. In some cases, these types of projects would not be permitted. Brush control projects and prescribed burns generally would not be allowed.

Under the No Wilderness Alternative, rangeland management activities would not be constrained by the requirement to maintain wilderness values. Use of motorized equipment, development of new roads, installation of rangeland developments resulting in surface disturbance, and other types of vegetation manipulation projects would be allowed as determined by sound livestock and rangeland management principles and BLM's general resource and environmental protection guidelines. As a result, it is expected that sometime within the next 50 years, naturalness and solitude in an area would be degraded to the point that the area would no longer meet wilderness criteria.

No. 0128-2

Name(s): William L. Allen, Pacific Western Land Company

Comment: "The third item is that there is already a great deal of physical evidence of man's previous intrusion into both areas. The areas are not pristine now, so how can they be called wilderness? Documentation detailing each incursion has been submitted to you previously."

Response: The Wilderness Act does not require that an area be pristine in order to be wilderness, but rather that the area "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." BLM acknowledges there is evidence of man's previous intrusion into both areas, but it is felt that the intrusions are substantially unnoticeable in the WSAs as a whole and do not detract from the naturalness of the areas.

* * * * *

No. 0132-1

Name(s): Joseph Kolessar, Phelps Dodge Corporation, New Mexico

Comment: "There has been no adequate mineral survey conducted by the U.S. Geological Survey, which is required by Section 603(a) of the Federal Land Policy and Management Act before a study area can be recommended for wilderness."

Response: Section 603 of the Federal Land Policy and Management Act requires that prior to the Secretary's recommendation for the designation of an area as wilderness, mineral surveys will be conducted on the area by the U.S. Geological Survey (USGS) and the U.S. Bureau of Mines. The field work for the mineral surveys in the Big Hatchet Mountains was completed in 1986. The final reports will be completed before the recommendations are sent to the President. The USGS and Bureau of Mines mineral survey reports, when completed, will be available for review by the public. If significant new information is presented in those reports, this EIS will be amended to incorporate that information.

No. 0132-2

Name(s): Joseph Kolessar, Phelps Dodge Corporation, New Mexico

Comment: "If the Big Hatchets and Cowboy Spring are designated as Wilderness, the area will be reclassified as Bureau of Land Management Visual Resource Management Class I area and possible a Class I Prevention of Significant Deterioration (PSD) area under the Clean Air Act, and Industry operations and expansion will be threatened. Phelps Dodge has invested over 400 million dollars in the smelter complex and the lands surrounding the smelter."

Response: Visual Resource Management Class I is assigned to special areas such as wilderness areas where a management decision has been made to maintain a natural landscape. According to BLM's Wilderness Management Policy, however, the fact that nonwilderness activities or uses can be seen or heard from areas within the wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area.

As stated in BLM's Wilderness Management Policy, the BLM will manage designated wilderness areas as Class II air quality unless they are reclassified by the State of New Mexico as a result of the procedures prescribed in the Clean Air Act (as amended, 1977).

APPENDIX 31

BLUE CREEK WSA (NM-030-026)

I. GENERAL DESCRIPTION

A. Location

The Blue Creek Wilderness Study Area (WSA) is located 6 miles northwest of Redrock, New Mexico, north of the Gila River.

The U.S. Geological Survey (USGS) topographic map covering the WSA is the Canador Peak, New Mexico quadrangle at the 15-minute scale.

B. Climate and Topography

The Blue Creek WSA is characterized by a semiarid, continental climate, with mild winters and pleasant to hot summers.

Average annual precipitation in the area is slightly greater than 12 inches. A wide variation in annual precipitation is characteristic of southern desert climates. More than half of the moisture normally falls during July, August, and September from convective thundershowers that are commonly intense and of short duration. The winter precipitation is mainly from gentle-intensity frontal type storms that may produce some light snow, which seldom accumulates on the ground.

During the summer months, daytime temperatures may exceed 100°F. The average monthly maximum temperature during July, the warmest month, is in the middle 90's. In January, the coldest month, average monthly minimum temperature is in the low 20's.

Winds are generally from the southeast in summer and from the northwest in winter, but local surface wind directions will vary greatly because of local topography. Spring is the windy season. Dry, gusty winds are predominantly from the west-southwest and may exceed 30 mph in the afternoons.

The Blue Creek WSA is dominated by Black Mountain, an elongated northwest trending topographical feature. The mountain is composed of black basalt. Slopes are gentle to moderate. Relief is in excess of 1,000 feet. Secondary features of the area include about 1½ miles of the Blue Creek arroyo, a drainage running south to the Gila River, and Seep Spring Draw.

C. Land Status

The Blue Creek WSA is comprised of 14,896 acres of public land. There are 1,280 acres of State inholdings. There are no private inholdings. (See Map 31-1 for land status.)

BLUE CREEK WSA (NM-030-O26)
Proposed Action-No Wilderness Alternative

MAP 31-1
LAND STATUS

Legend

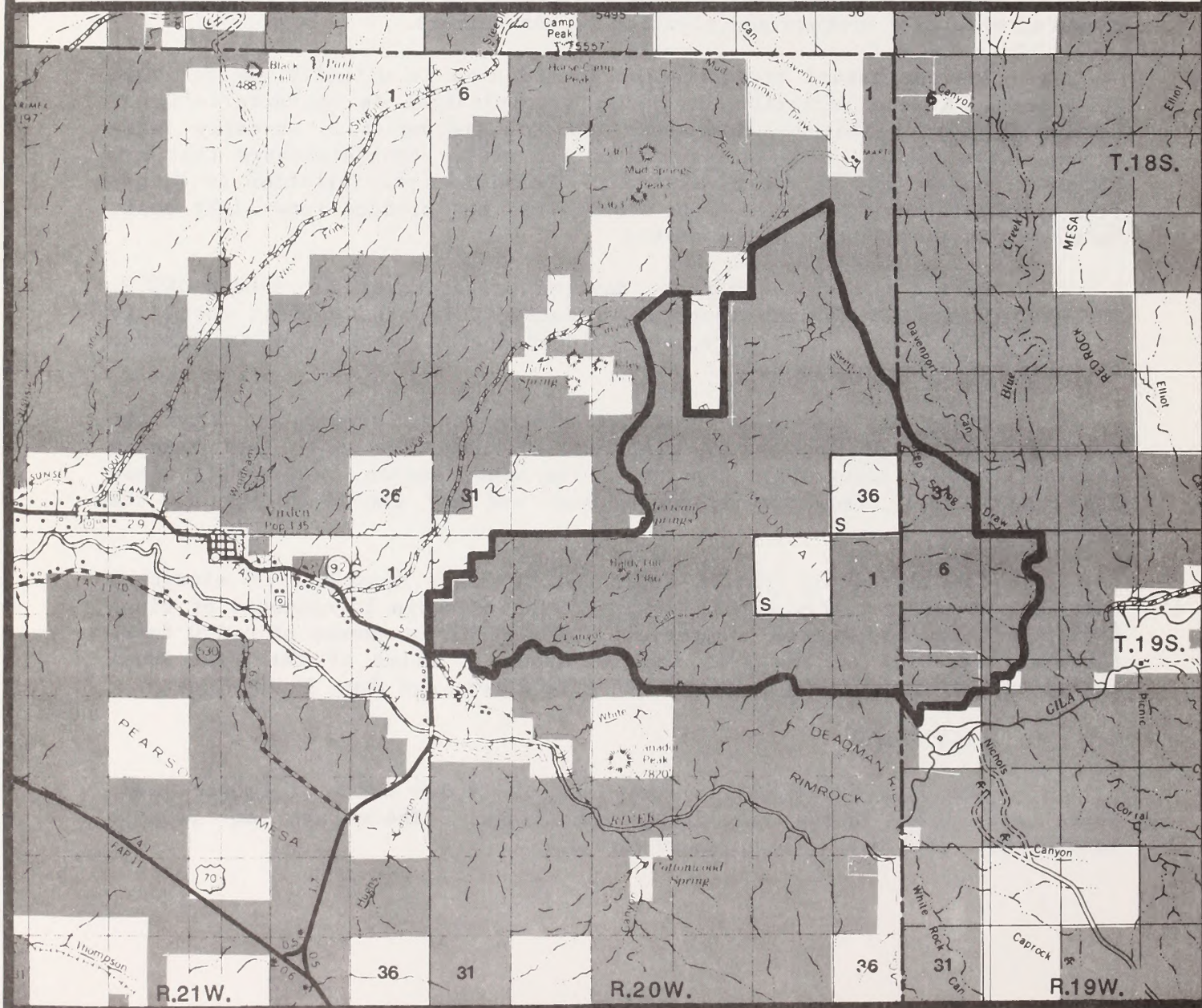
— WSA BOUNDARY

Land Status

- BLM
PRIVATE
STATE

Scale: 1/2 inch=1 mile

Source: USDI, BLM, Las Cruces District, April, 1986.



D. Access

Legal access to the northern portions of the WSA is provided by County Road A039 which runs northeast off of State Highway 82 approximately $1\frac{1}{4}$ miles east-southeast of Virden, New Mexico. County Road A030 runs east from State Highway 82 approximately $\frac{1}{2}$ mile north of the Gila River bridge and provides legal access along the southern boundary of the WSA.

Additional physical access is provided by the roads to Mexican Springs and the X-Bar U windmill. These roads run south from County Road A039 along the western and eastern slopes of Black Mountain, respectively.

E. Description of the Issues, Proposed Action, and Alternatives

The summary of scoping lists alternatives and issues considered for analysis, as well as other alternatives and issues considered but not selected for detailed analysis in this WAR. These alternatives and issues were raised by BLM and the public during the wilderness inventory and preparation of the District's Environmental Assessments (EAs). While certain resource uses were not selected as issues for detailed analysis, resources such as wildlife, visual resource values, recreational use, soils, and vegetation are explained in the document when they are affected by actions relating to the key issues selected for detailed analysis.

A detailed description of those actions associated with the proposal and alternatives is provided in Table 1. The No Wilderness Alternative is the proposed action for the Blue Creek WSA because of the marginal quality of the area's wilderness values and the potential for wilderness management conflicts. The Blue Creek WSA marginally meets the required naturalness criterion. The opportunities for solitude are outstanding; however, opportunities for primitive recreation are not exceptional. Supplemental values of the WSA are not significant.

The significant environmental impacts by alternative for each of the environmental issues are summarized in Table 2.

SUMMARY OF SCOPING

Alternatives Considered and Set Aside	Reasons for Not Including this Alternative
Amended Boundary	The New Mexico Natural History Institute suggested redrawing the boundary to exclude existing and proposed rangeland developments from the southern part of the WSA to improve manageability. This alternative was not considered because most of the existing and proposed rangeland developments are actually along the northeast slopes of Black Mountain and in the Blue Creek drainage. Redrawing the WSA boundary to exclude these developments would have resulted in a convoluted boundary without improving the manageability of the area.
Inclusion of the Blue Creek WSA in a Gila River Area of Critical Environmental Concern (ACEC)	This alternative was not considered because none of the resources of the Blue Creek WSA meet the relevance and importance criteria necessary for an area to be identified as an ACEC.

Issues Raised and Set Aside	Reasons for Not Conducting a Detailed Analysis
Impacts on Threatened or Endangered Species: night blooming cereus	Threatened or endangered species were not selected for detailed analysis because of the low resource development potential. The U.S. Fish and Wildlife Service has concurred with BLM's finding of no affect on species Federally-listed or proposed for listing as threatened or endangered.

Alternatives Selected for Detailed Analysis	Reasons
All Wilderness	14,896 acres were identified during the inventory as having wilderness values.
No Wilderness (Proposed Action)	The No Action Alternative required by NEPA.

Environmental Issues Selected for Detailed Analysis

Two primary issues identified for this WSA in the initial scoping activities, the WAR, and in public comments on the Draft EA are the impacts on wilderness values and impacts on livestock grazing use levels.

TABLE 1
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All Wilderness	No Wilderness (Proposed Action)
<p>°MANAGE TO MAINTAIN OR ENHANCE EXISTING WILDERNESS VALUES ON 14,896 ACRES AS WILDERNESS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-Attempts would be made to acquire 1,280 acres of State land within the WSA and 480 acres of private land adjacent to the WSA.</p> <p>-Close 6 miles of vehicle ways which currently receive low use (less than 100 vehicles per year).</p> <p>-14,896 acres with low mineral potential would be closed to energy minerals leasing and mining claim location.</p> <p>Require permits for vehicular access to a windmill, 2 storage tanks, 6 troughs, 2 corrals, 2 dirt tanks, and 2 miles of pipeline on the Shay allotment (1059). No more than one trip per year is anticipated for vehicle access. Casual vehicle use for inspections and minor repair of rangeland developments would be precluded.</p> <p>-Current livestock grazing use levels of approximately 9 head per section per year (2,511 AUMs) would continue.</p>	<p>°MANAGE 14,896 ACRES WITHOUT WILDERNESS CONSTRAINTS. THE FOLLOWING ACTIONS WOULD BE TAKEN:</p> <p>-No special attempts would be made to acquire State and private lands.</p> <p>-Vehicle use would be allowed to continue on 6 miles of vehicle ways. Total vehicle use is estimated to be less than 100 vehicles per year.</p> <p>-14,896 acres with low mineral potential would remain open for energy minerals leasing and mining claim location. Due to low favorability for occurrence, it is expected that mineral activity would be limited to casual use, surface collection of mineralized material, and location of mining claims. Surface disturbing exploration is not projected.</p> <p>-Vehicular access restrictions for maintenance of rangeland developments would not apply. Access for inspections and minor repairs would be allowed as needed on 6 miles of vehicle ways and without restrictions. Cross-country travel could result in the establishment of 1-3 more miles of vehicle ways.</p> <p>-Current livestock grazing use levels of approximately 9 head per section per year (2,511 AUMs) would continue with additional rangeland development projects constructed in the long-term.</p>

TABLE 2
SUMMARY OF SIGNIFICANT IMPACTS

Alternatives/ Acreage	Major Environmental Issues
	Impacts On Wilderness Values
All Wilderness (14,896 acres)	Wilderness protection would maintain the natural character of juniper and desert shrub covered mountain and opportunities for solitude, hiking, camping, and photography. Naturalness would improve by 10 percent as a result of closing 6 miles of vehicle ways and allowing natural revegetation to occur.
No Wilderness (14,896 acres) (Proposed Action)	In the short-term, the natural character of this juniper and desert shrub covered mountain would be maintained. Continued use of 6 miles of vehicle ways would, over the long-term, result in a 10 percent reduction in the quality of naturalness and opportunities to experience solitude.



Black Mountain is the major topographic feature of the Blue Creek WSA.

II. EXISTING RESOURCES AND ENVIRONMENT

A. Geology

The area surrounding the Blue Creek WSA is dominated by fault block mountains, extensive volcanics, and river and shallow lake deposits. The oldest exposed rocks in the WSA are Tertiary volcanics consisting of andesite flows and tuffs. Overlying the Tertiary volcanics are younger Quaternary rhyolitic and latitic tuffs interbedded with a thin sedimentary section of sandstone and conglomerates. Younger basaltic andesite forms Black Mountain.

Structurally, Black Mountain is a volcanic fault block uplifted along the eastern and western edges. East to west trending faults cut across the mountain in several places. A series of faults is evident at the southern end of the mountain and another system occurs west of the mountain in the vicinity of Mexican Springs.

B. Water

The Blue Creek WSA is situated within the Gila River Basin and contributes to the larger Lower Colorado River Basin.

Surface water within the WSA drains into the Gila River through an ephemeral stream system. Blue Creek is a principal tributary to the Gila River and is perennial in the upper reaches north of the WSA. However, underground flow predominates in the lower reaches of the drainage along the southeast boundary of the WSA. Surface flow in the ephemeral streams generally occurs only as a result of summer thundershowers.

Ground water is available from the Gila Conglomerate in a narrow band on either side of Blue Creek. Lower yields are expected in the volcanic rocks and bolson fill. Ground water movement is towards the Gila River, and most recharge occurs in the stream channels during periods of flood runoff. Ground water quality in the area is within recommended limits for livestock and wildlife use, as established by the National Academy of Sciences (BLM 1980).

C. Soils

The major soil type within the Blue Creek WSA occurs on Black Mountain and is characterized by shallow, stony soils over basalt bedrock. Some areas of rock outcropping occur on the steeper slopes.

On the more level land to the north of Black Mountain, the soils are deeper and have a gravelly loam surface texture. In the Blue Creek drainage, the soils consist of stratified sands, silts, clays, and gravels. Surface textures range from silty clay loam to gravelly sands.

D. Vegetation

1. General

The vegetation and associated range sites within the Blue Creek WSA consist of four major types:

Vegetation Type	Range Sites	Federal Acres
Juniper-mixed		
mountain shrub	Mountain	7,128
Creosote	Malpais (lava flow)	5,262
Creosote	Breaks	2,358
Deciduous trees	Bottomland	148

Juniper trees, acacia, Mormon tea, allthorn, sumac, graythorn, creosote, mesquite, and snakeweed shrubs are the dominant vegetation on the mountain slopes of this WSA. Grass species present are gramas, tobosa, bush muhly, dropseed, curly mesquite, foxtail, and threeawns.

Creosote prevails on the malpais (lava flow) area. There are scattered juniper trees with associated shrub species such as snakeweed, mesquite, and sumac. Numerous varieties of grass species make up a large part of the vegetation on this range site. Grass species include tobosa, bush muhly, gramas, threeawns, Arizona cottontop, foxtail, and cane bluestem. This range site occurs in the southwestern part of the WSA and on the east slopes of Black Mountain.

Breaks, a highly erodable range site, occur along the Gila River. The soils within this range site are stabilized by shrub species such as creosote, snakeweed, tarbush, mesquite, mimosa, yucca, Mormon tea, rabbitbrush, cacti, and numerous grass species including tobosa, bush muhly, threeawns, black grama, fluffgrass, dropseeds, and other gramas.

Deciduous trees in the deeper soils of the bottomland site along Blue Creek include ash, cottonwood, Arizona sycamore, and willow. Some juniper trees are also present. However, tree species are few and far between with grasses being more dominant in this area. Grass species include bush muhly, green sprangletop, Arizona cottontop, sideoats grama, threeawns, and dropseeds.

2. Rare Plant Species

The following species was identified and located in or near the WSA (NMSHP AND USFWS 1982; revised 1986).

Species: Cereus greggii - night blooming cereus
Status: Listed as endangered by the State of New Mexico;
candidate for Federal listing.
Habitat: Widespread; does not grow commonly anywhere; needs
the microhabitat associated with creosote and bush muhly.

E. Wildlife

The Blue Creek WSA is largely mixed shrub mountain and creosote habitat sites. There are small areas of grass, mixed shrub rolling upland, and pseudoriparian sites. The latter is in the portion of Blue Creek that runs through the WSA.

Most of these sites do not support diverse wildlife communities. A pseudoriparian site has somewhat more diversity, but the Blue Creek WSA is not an exceptionally valuable wildlife area.

Big game occur in low numbers in the WSA. There are a few mule deer and also some javelina. The latter are close to their northernmost limit of distribution in this area.

F. Visual

Black Mountain is a rounded undulating mountain surrounded by rolling foothills. Vegetation forms broken and irregular patterns which generally follow drainages. The scenic quality rating is B (moderate).

Portions of the Blue Creek WSA are in three Visual Resource Management Classes (VRM) as follows: Class II--8,156 acres, Class III--809 acres, and Class IV--5,931 acres.

G. Cultural

There are no known cultural resources in the Blue Creek WSA. The probability of significant sites in most of the WSA appears poor. However, the southeastern portion of the WSA could contain significant sites because of proximity to the Gila River and the availability of several fairly flat areas.

H. Air

Generally, the quality of air within the Blue Creek WSA is good. The air quality in the WSA does not exceed the State or Federal air quality standards and is classified as a Class II area. This classification allows a moderate amount of degradation of air quality.

The only major degradation of air quality occurs during the spring months (March-May) when west-prevailing winds, commonly gusting in excess of 30 mph, result in dust storms throughout the southern part of the State.

BLUE CREEK

III. EXISTING AND POTENTIAL USES

A. Mineral Resources

1. Energy Minerals (Geothermal)

As of April 15, 1986, there were no mineral leases present in the area.

Although travertine deposits indicative of the one-time presence of thermal springs occur at Cliff Roy mine, 4 miles to the southeast, and in the eastern portion of the Gila Lower Box WSA, 1½ miles to the south, none have been observed in the Blue Creek WSA. Furthermore, the volcanic activity that has occurred in the area is not the type generally associated with geothermal activity, and is probably too ancient to indicate any current potential. Because of this, the potential for geothermal resources within the Blue Creek WSA is considered low.

2. Nonenergy Minerals (Manganese)

As of April 15, 1986, there were no mining claims recorded with the BLM in the WSA.

Manganese deposits and workings are visible at the Black Bob mine, ¾ of a mile south of the WSA, the Consolation mine, 2 miles southeast of the WSA, and the Cliff Roy mine, 4 miles southeast of the WSA. Interestingly, these mines are aligned in a north 45° west trend that, if extended to the northwest, would pass through the Blue Creek WSA. The manganese deposits found at these workings were probably deposited by ascending thermal waters, and occur as shoots along northwest trending veins in volcanic agglomerate. No manganese deposits are known to exist in the WSA; however, even though geologic indicators are favorable for its occurrence, it is doubtful that deposits of significant commercial value would be found. Therefore, the potential for manganese resources in the Blue Creek WSA is low.

TABLE 3
MINERAL RESOURCES POTENTIAL OF THE BLUE CREEK WSA

Commodity	Geologic Environment	Mineral Resources Potential	Approximate Acreage*
Energy Minerals Geothermal	Tertiary volcanics	Low	--
Nonenergy Minerals Manganese ^a /	Epithermal hypogene deposits in a northwest trend southeast of WSA	Low	--

Notes: *Acreage was not calculated for areas with low potential.

^a/Listed on the National Defense Stockpile Inventory of Strategic and Critical Minerals.

B. Watershed

Within the Blue Creek WSA, water is used primarily by livestock and wildlife. Water developments that are within the WSA boundary include two dirt tanks, a pipeline system, and one well facility (see Chapter III, Livestock Grazing). The Blue Creek WSA is part of the Gila-San Francisco declared underground water basin and ground water use is administered by the New Mexico State Engineer.

Water draining the Blue Creek WSA, as both surface flow and underground flow, contributes to the Gila River system where downstream uses include irrigation, limited warm water fishery, livestock and wildlife watering, secondary contact recreation, and limited drinking water.

A watershed decision in the Gila Management Framework Plan (MFP) (BLM 1977) identifies an extensive area northwest, west, south, and southeast of Black Mountain where construction of water control structures to reduce flood and sediment damages might be feasible. Approximately 1/3 of the identified area lies within the Blue Creek WSA. It is not likely that these structures would be built in the foreseeable future. Also, opportunities exist for construction outside the WSA.

C. Livestock Grazing

1. Allotments

Parts of four grazing allotments are within the Blue Creek WSA. A small area in the middle of the WSA is ungrazed by livestock due to steep slopes. Licensed grazing use on public land includes cattle and a few horses.

TABLE 4
ALLOTMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Total Acres	Total AUMs	Acres in in WSA	Approximate AUMs in WSA	Percent Allotment
R. Johns 1028	2,644	288	1,838	202	70%
R. Johns 1029	960	192	160	33	17%
R. Shay 1059	35,591	6,240	10,905	1,934	31%
Caprock 1078	30,028	4,884	1,993	342	7%
TOTAL			14,896	2,511	

2. Ranch Management

TABLE 5
EXISTING RANGELAND DEVELOPMENTS WITHIN THE WSA^{a/}

Allotment Name and Number	Type of Development	Location
R. Shay 1059	windmill, trough, storage tank, and corral	T. 19 S., R. 19 W., Sec. 8
	2 dirt tanks	T. 18 S., R. 20 W., Sec. 23, 27
	5 troughs,	T. 18 S., R. 20 W., Sec. 13, 14, 25
	storage tank	T. 18 S., R. 19 W., Sec. 30, 31
	corrals	T. 18 S., R. 19 W., Sec. 30
	pipeline	2 miles
	interior fence	6 miles
	erosion control fence	T. 18 S., R. 20 W., Sec. 14
Caprock 1078	interior fence	1 mile

Boundary Fences:	Caprock (1078) and Johns (1028)	$\frac{1}{2}$ mile
	Caprock (1078) and Shay (1059)	4 miles
	Shay (1059) and Johns (1029)	$1\frac{1}{2}$ miles
	Shay (1059) and Johns (1028)	3 miles

Note: ^{a/}Information shown in tables reflects only Federal acres and animal unit months (AUMs), and rangeland developments on public land.

3. Potential Rangeland Developments

The Las Cruces/Lordsburg Management Framework Plan Amendment/Environmental Impact Statement (BLM 1983) on energy minerals leasing and rangeland management proposes two erosion control dams within the WSA on the R. Shay allotment (1059) in T. 18 S., R. 20 W., Section 14, for watershed protection. This location is tentative and other sites outside the WSA may also exist. It is not likely that these projects would be constructed in the foreseeable future.

D. Recreation

Very little recreational use presently occurs within the WSA. Some local residents hunt deer in the WSA. Public comments indicated that some Silver City residents enjoy hiking in the area.

E. Realty Actions

A temporary State Aid Withdrawal was located within the Blue Creek WSA at the time the Draft Environmental Assessment Wilderness Study Areas in

the Las Cruces District (BLM 1983) was released. The State of New Mexico completed their land selection and the withdrawal was reviewed by the BLM. The withdrawal was revoked effective October 7, 1983.

A portion of the Blue Creek WSA is withdrawn for use in connection with the San Carlos Indian Irrigation Project. The purpose of the withdrawal is watershed protection.

In addition, segments of the WSA are withdrawn by Executive Order for powersite reservations. These lands are currently being reviewed by the U.S. Geological Survey, Water Resources Division, to determine their importance for powersite locations. Those withdrawals found not feasible will be revoked.

Duncan Valley Electric Company has two rights-of-way (ROWs) for transmission lines. One is just outside the southwest boundary of the WSA and the other forms part of the northwest boundary.

The Sunset Ditch Company was granted a ROW in 1977 for construction and maintenance of a flood control project designed to protect the existing community irrigation system from sedimentation, side drainage flooding, and debris damage. The portion of the ROW within the WSA comprises a total of 5.26 acres at two separate sites in T. 19 S., R. 20 W., Section 7, SE $\frac{1}{4}$ NW $\frac{1}{4}$ and SW $\frac{1}{4}$ NW $\frac{1}{4}$. Debris basins designed to catch floating debris are located on both of these sites.

IV. WILDERNESS CRITERIA

A. Evaluation of Wilderness Values

1. Quality of Mandatory Wilderness Characteristics

a. Naturalness

Numerous rangeland and watershed developments are located within the Blue Creek WSA. These include 2 dirt tanks, 2 corrals, 6 drinking troughs, 2 miles of pipeline, a windmill, 2 storage tanks, 17 miles of fence, and 2 debris basins associated with the Sunset Ditch flood control project. There are also approximately 6 miles of vehicle ways within the WSA. These imprints of man are concentrated on Black Mountain's northeast slopes and in Seep Springs Draw and Blue Creek and degrade the naturalness of these topographic features. Since the cumulative impacts of these developments are substantially unnoticeable when considering the entire Blue Creek WSA, this area marginally meets the required naturalness criterion.

b. Solitude

Opportunities exist for a visitor to feel isolated from the evidence of other people within the WSA. These opportunities are considered outstanding and are primarily the result of the remoteness of the area and, to a lesser degree, the WSA's topographic diversity.

c. Primitive and Unconfined Recreation

The outstanding opportunities for primitive and unconfined recreation include hiking, backpacking, photography, and horseback riding. However, the quality of these opportunities are negatively impacted by land status and the location of rangeland developments.

Land ownership patterns in the WSA disrupt the continuity of Black Mountain. The northern end of Black Mountain and part of the surrounding foothills (T. 18 S., R. 20 W., part of Sections 22 and 27) are in private ownership. Two State sections, T. 19 S., R. 20 W., Section 2, and T. 18 S., R. 19 W., Section 36, are located in the center of Black Mountain. This combination of State and private lands reduces the opportunity to enjoy an unconfined recreational experience in the WSA. Users of the area are unable to hike around the base or along the ridge of Black Mountain without crossing State or private lands.

The locations of rangeland developments impact each of the WSA's major topographic features which in turn affects the quality of hiking or backpacking opportunities. Visitors hiking along the eastern slopes of Black Mountain can easily see the dirt tanks located in T. 18 S., R. 20 W., Sections 23 and 36 (State inholding). When the hiker is below or north of the peak in Section 34, two of the tanks come into view. Visual intrusions located close to the mountain reduce the feeling of being isolated or in an isolated area.

While hiking in the bottom or along the rims of the WSA's two major canyons (Blue Creek and Seep Springs Draw), visitors again see rangeland developments. Several drinking troughs and a pipeline are located in Seep Springs Draw. A windmill, storage tank, and corrals are located in the canyon of Blue Creek.

The 16 miles of grazing allotment boundary and interior pasture fences within the WSA limit opportunities for horseback riding. An interior pasture fence runs along the spine of Black Mountain, restricting movement between the east and west sides of the mountain. Fences are also located in the eastern and southwestern parts of the WSA.

2. Special Features

The Blue Creek WSA provides habitat for a plant species listed as endangered by the State of New Mexico and also a candidate for Federal listing (see Chapter II, Vegetation). The plant is an ecological feature of scientific value.

3. Multiple Resource Benefits

Congressional designation of this area as wilderness would provide a greater degree of long-term protection for the area's wilderness and renewable resource values than would administrative designations available to the BLM.

4. Diversity

a. Ecosystems Present

The Bailey (1976) - Kuchler (1966) System classifies the area as being in the Chihuahuan Desert Province with a potential natural vegetation of grama-tobosa shrubsteppe.

The general nature of the Bailey-Kuchler System fails to show the vegetation variety and diversity of the WSA. Further refinement of the system shows the following vegetation types in the WSA:

<u>Vegetation Type</u>	<u>Acres</u>
mountain mahogany-oak scrub	7,276
creosote	7,620

b. Distance From Population Centers

The WSA is approximately 3 hours driving time from Las Cruces, New Mexico; 6 hours from Albuquerque, New Mexico; 4 hours from El Paso, Texas; 4 hours from Tucson, Arizona; and 6 hours from Phoenix, Arizona.

B. Manageability

Manageability of the Blue Creek WSA is affected primarily by land ownership. The effect of this factor on manageability is assessed in terms of its relationship to the major topographic features of the WSA.

The primary topographic feature of the WSA is Black Mountain. The mountain dominates the WSA and provides the majority of opportunities for solitude and primitive recreation. Topographic features of secondary importance are Blue Creek and Seep Springs Draw. The northern end of Black Mountain is in private ownership and the center of Black Mountain and portions of Blue Creek are in State ownership.

The existing natural values on the public land in the WSA could not be maintained if nonwilderness uses on the adjacent private land or State land inholdings result in additional accumulation of the imprints of man. Management of the Blue Creek WSA as wilderness would require acquisition of adjacent private land and State inholdings. Should the area be designated wilderness, the lands legally described below should be considered for acquisition.

<u>Legal Description</u>	<u>Acres</u>
State Land	
T. 18 S., R. 20 W., Section 36, All	640
T. 19 S., R. 20 W., Section 2, All	<u>640</u>
TOTAL	1,280
Private Land	
T. 18 S., R. 20 W., Section 22, $W\frac{1}{2}E\frac{1}{2}$, $E\frac{1}{2}W\frac{1}{2}$	320
Section 27, $W\frac{1}{2}NE\frac{1}{4}$, $E\frac{1}{2}NW\frac{1}{4}$	<u>160</u>
TOTAL	480

V. IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

A. All Wilderness

Under this alternative, the entire 14,896 acres of public land within the Blue Creek WSA would be recommended suitable for wilderness designation. (See Map 31-1 for WSA boundary.)

If designated wilderness, the existing uses and activities in the area, and the potential uses identified in BLM planning documents (see Chapter III) would be managed under the constraints of the Wilderness Management Policy (WMP) (BLM 1981).

1. Impacts on Wilderness Values

Under wilderness designation, the existing natural values would be preserved. Outstanding opportunities for solitude and primitive recreation would be enhanced by 3-5 percent in the long-term by closure of 6 miles of vehicle ways to motor vehicles, by restrictions on motorized equipment use by livestock operators, and through the possible acquisition of adjacent State and private lands. In addition, closing 6 miles of vehicle ways would improve the WSA's naturalness by the same 3-5 percent as these ways are naturally reclaimed.

Conclusion. Under the All Wilderness Alternative, the WSA's naturalness and opportunities for solitude and primitive recreation would be maintained and enhanced by 3-5 percent in the long-term.

2. Impacts on Livestock Grazing Use Levels

The WSA presently supports approximately 9 head per section per year (2,511 AUMs). Under BLM's Wilderness Management Policy, there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. The facilities which have been installed to support this level of livestock grazing use include a windmill, 2 storage tanks, 6 drinking troughs, 2 corrals, 2 dirt tanks, 2 miles of pipeline, and 17 miles of fence. New rangeland development facilities are not planned. Maintenance of the existing facilities is allowable under the BLM Wilderness Management Policy, with permits required when motorized vehicles or equipment are used. Minor repairs to the fences would have to be accomplished on horseback.

Casual use of vehicles for inspection or repair of existing facilities would be precluded. Construction of new developments, their location, and types of materials used would be limited in order to protect wilderness values.

Checking cattle by vehicle in the WSA would not be allowed. This could result in less effective livestock management and an impact on costs of the operation, depending on the use normally made of the trails by motor vehicles.

BLUE CREEK

Restriction of vehicular use, less than 100 vehicles per year, inside the designated wilderness area could reduce vandalism of rangeland developments and other problems resulting from vehicle-dependent access.

Conclusion. Restrictions on use of motor vehicles for inspection or repair of existing developments would create an inconvenience to the permittee, but no impacts on existing livestock grazing use levels would occur.

B. No Wilderness (Proposed Action)

Under the No Wilderness Alternative, the entire 14,896 acres of public land within the Blue Creek WSA would be recommended nonsuitable for wilderness designation.

If the WSA is not designated wilderness, the area would be managed under the Gila Management Framework Plan (MFP)(BLM 1977) and the Las Cruces/Lordsburg MFP Amendment/EIS (BLM 1983). Under both of these plans, livestock grazing and watershed protection are the recommended uses of the area. The Gila MFP proposed extensive water control structures over much of the western and southern portions of the WSA. The Las Cruces/Lordsburg MFP Amendment proposed two erosion control structures in the northeast part of the WSA. As of June 1986, there were no proposals to build any of the water control or erosion control structures identified in District planning documents. Due to the current low priority of such projects with BLM, it is not expected that they would be constructed in short-term. Whether the projects would be constructed in the long-term would be determined in subsequent land-use planning cycles. However, opportunities and sites for construction do exist outside the WSA. The potential for construction of these projects to impact the WSA appears low at this time.

Some mineral exploration activity would be expected to occur, but it is likely that it would be limited to casual prospecting and mining claim location.

In the 14,896 acres not designated as wilderness, unavoidable adverse effects would result from future surface disturbance activities. Cumulative short-term consumptive uses of this land would lead to long-term degradation of wilderness values. Nondesignation of 14,896 acres as wilderness would leave this acreage available for development which could irreversibly degrade wilderness values which could foreclose the option of wilderness designation in the future.

1. Impacts on Wilderness Values

In the short-term, the natural character of the juniper and desert shrub covered mountain would be maintained as would be the opportunities for solitude and primitive and unconfined recreation. Continued use of 6 miles of vehicle ways would, over the long-term, result in a 10 percent reduction in the quality of naturalness and opportunities to experience solitude.

Conclusion. The area's naturalness and opportunities for solitude and primitive recreation would be maintained in the short-term, but would be degraded in the long-term.

2. Impacts on Livestock Grazing Use Levels

All rangeland developments would be checked and maintained on a convenience basis using motorized equipment. The permittees would be allowed to use vehicles as at present to check cattle. Livestock grazing would continue at the approximate levels currently existing (approximately 9 head per section per year or 2,511 AUMs).

Conclusion. There would be no impacts on livestock grazing operations or use levels.

VI. CONSULTATION AND COORDINATION

A. Public Involvement Overview

Public comments were received on the Blue Creek unit during both the New Mexico Wilderness Initial Inventory Decisions (BLM 1979) and the New Mexico Wilderness Study Area Proposals (BLM 1980). The majority of the initial inventory comments opposed wilderness review of the area. The rationale cited lack of basic wilderness characteristics, poor configuration for management, and resource conflicts with minerals and grazing. The majority of comments on the 1980 WSA Proposals supported wilderness review of the area, listing the presence of basic wilderness criteria as rationale.

During the public comment period on the Draft Environmental Assessment Wilderness Study Areas in the Las Cruces District (BLM 1983), 23 personal inputs were received on the Blue Creek WSA. The majority of these comments (14) favored wilderness designation of the area.

Many of the comments favoring wilderness designation listed basic wilderness values and ecological and cultural supplemental values as rationale. Other pro-wilderness comments included expressions of disagreement with the use of manageability conflicts to support a nonsuitable wilderness recommendation and general statements that the Blue Creek WSA is manageable. Still other commentators cited the lack of resource conflicts as support for wilderness designation.

The New Mexico Natural History Institute suggested boundary adjustments to exclude rangeland developments in the southern part of the WSA and also indicated that, "It is possible that inclusion in a Gila River ACEC with tough provisions barring ORVs and further range improvements, rather than wilderness designation, would suffice for this area. But because no such protection was proposed in the recent Management Framework Plan Amendment, and because of your demonstrated unwillingness to protect areas that you do designate for protection (notably Aden Lava Flow RNA) we think that recommendation as wilderness is the prudent course for Blue Creek."

Most of the nine personal inputs opposing wilderness designation for the Blue Creek WSA indicated agreement with the BLM's assessment of the area and the nonsuitable recommendation. Opposing comments also cited the potential for manganese deposits and oil and gas accumulations at depth.

During the public comment period on the New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico Wilderness Coalition. Alternative W included the Blue Creek WSA and recommended wilderness designation for the entire WSA. Twenty commentators specifically addressed the Blue Creek WSA. All 20 commentators favored wilderness designation.

During the public comment period on the New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement (BLM 1986), specific comments were directed to the Blue Creek WSA by 37 commentators. Comments on this WAR which require a response are discussed and responded to in the following section.

Public Review of the Revised Draft EIS

No. 0100-1

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "The BLM is recommending the no-wilderness alternative for Blue Creek WSA because of the 'marginal quality of the area's wilderness values and the potential for wilderness management conflicts.' The two specific reasons concern naturalness and land status. The coalition disagrees with the BLM assessment on both counts . . .

The coalition feels that the BLM has overemphasized the impacts of the few rangeland and watershed developments in the WSA. Except for fencelines and dirt tanks, all of these intrusions are near the edge of the WSA."

Response: The BLM's nonsuitable recommendation for the Blue Creek WSA is based on the combination of marginal wilderness values and the potential for wilderness management conflicts.

Both the WSA's naturalness and the marginal quality of opportunities for primitive recreation are impacted by the numerous imprints of man within the WSA. These imprints include 6 miles of vehicle ways and the following rangeland developments: 16.2 miles of fence, 2 dirt tanks, a well with watering facilities and a corral, and 2 miles of pipeline with an associated storage tank and 5 troughs. Although many of the imprints are within a mile of the WSA boundary, the naturalness and recreational appeal of the WSA's major topographic features, Black Mountain, Sheep Springs Draw, and Blue Creek, are negatively impacted. State land inholdings in the center of Black Mountain and private land on the northern end of Black Mountain further reduce the quality of primitive recreational opportunities. The above evaluation forms the basis for BLM's conclusion that the wilderness values of the Blue Creek WSA are of marginal quality.

State land inholdings and private land adjacent to the northern end of the WSA constitute roughly 20 percent of the land area of Black Mountain. Management of the Blue Creek WSA as wilderness would require acquisition of adjacent private land and State inholdings.

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No. 0100-2

Name(s): Judith Bishop/Jim Fish, New Mexico BLM Wilderness Coalition

Comment: "Although this area stands on its own merits, it should also be considered for the supplemental reason of being a defacto extension of the Gila Lower Box in terms of visual resources and wildlife. Raptors, in particular, range widely over the Blue Creek WSA. Lack of protection for Blue Creek will definitely have a negative impact on the long-term quality of the Gila River and the Gila Lower Box."

Response: For reasons cited above and discussed in the WAR, BLM disagrees with the Coalition that Blue Creek WSA stands on its own merits as wilderness. While it is correct that Blue Creek is an extension of the Gila Lower Box in terms of visual resources and wildlife, this is not sufficient justification for recommending the area for wilderness designation. An area must meet the wilderness criteria on its own in order to be considered for wilderness designation. To designate Blue Creek WSA as wilderness to protect the Gila Lower Box would, in effect, be creating a buffer zone for the Gila Lower Box which is prohibited by BLM's Wilderness Management Policy. With or without wilderness designation, we will ensure that actions necessary to protect wildlife values will be implemented.

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